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AGRICULTURE

No. 1271

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CONTENTS

MAJOR CROP PROGRESS AND WEATHER REPORTING

BRIEFS

TSELINOGRADSKAYA OBLAST FIELD WORK--Tselinograd--The oblast's kolkhozes and sovkhozes have laid the foundation for the harvest of the first year of the Eleventh Five-Year Plan. Snow ridging work has been completed on a gigantic area in excess of 3.5 million hectares. The machine operators, who each year are increasing their production of wheat -- the principal crop of virgin land field crop production operations -- are well aware of the value of moisture. Under local conditions, almost one half of the productive supplies of moisture required for plant development is furnished by winter precipitation. Thus the decision was made to maintain the tempo of the "white plowing" work. The snow retention work is being carried out a second time. [Text] [Moscow GUDOK in Russian 15 Feb 81 p 1] 7026

DRAINAGE OF LOW AREAS--Krasnodar--The equipment has been moved out onto the Kuban' fields. Taking advantage of the warm days, the farmers are draining the so-called "saucer-shaped puddles." These small tracts are formed each year from the accumulation of thaw water in low areas of fields. The wheat and barley crops do not develop well in such areas and quite often the plants perish. At kolkhozes and sovkhozes in Ust'-Labinskiy, Bryukhovetskiy and Timashevskiy rayons, the drainage work is being carried out using mobile pumping stations. [Text] [Moscow TRUD in Russian 11 Feb 81 p 1] 7026

INDUSTRIAL PRODUCTION OF VEGETABLES--Tashkent--The farms in southern Uzbekistan have commenced sowing cabbage on new lands developed in the Sherabadskaya Steppe region. The industrial production of vegetables is to be conducted here for the very first time. In addition to satisfying their own requirements, the virgin land workers also plan on shipping a considerable portion of their output to the residents of Siberia. [Text] [Moscow TRUD in Russian 11 Feb 80 p 1] 7026

GRAIN SEED PREPARATION COMPLETED--Stavropol'--A mass pre-spring inspection of the seed, completed yesterday throughout the kray, has revealed that the seed for the spring grain crops in all areas meets the requirements for 1st class in terms of germinative capacity, cleanliness and moisture content. In raising their seed grain to the best sowing standards, the grain growers in the Stavropol' steppe regions fulfilled an important point of their socialist obligations for making worthy preparations for the 26th party congress. [Text] [Moscow TRUD in Russian 11 Feb 80 p 1] 7026

PRE-SPRING SOWING PREPARATIONS COMPLETED--Krasnodar--Equipment preparation work in behalf of the spring sowing campaign has been completed on farms in the Kuban'.

Three thousand sowing units have been placed in a state of readiness at kolkhozes and sovkhozes. They have been supplied with seed, mineral fertilizers and they have been staffed with machine operators for double shift operations. This year the plans call for many crops to be grown throughout the kray using an industrial technology. [Text] [Moscow TRUD in Russian 31 Jan 81 p 1] 7026

AIRBORNE TOP DRESSING APPLIED--Kurgan-Tyube--Yesterday aircraft flew over the winter grain crop plantings in southern Tajikistan. Work commenced in connection with applying a top dressing to these grain crops, which occupy an area of almost 200,000 hectares. The crops endured the winter very well. On many fields they have entered the tillering phase. The application of early top dressings is considered to be a reliable means for raising cropping power. [Text] [Moscow TRUD in Russian 31 Jan 81 p 1] 7026

SHIRAKSKAYA STEPPE SOWING OPERATIONS--Signakhi--Spring arrived in Georgia considerably earlier than called for by the calendar -- yesterday the farmers in the Shirakskaya Steppe region commenced their sowing of barley, oats and rye. In Signakhskiy Rayon, leading machine operators T. Kochlishvili and U. Patalashvili at the kolkhoz in the village of Bodbiskhevi moved their units out onto the fields. Last year they obtained a high yield -- 35 quintals of grain per hectare. Their new goal -- 40 quintals. The farms in the Shirakskaya Steppe have made fine preparations for the sowing work: the soil has been prepared in advance and enriched with organic-mineral mixtures and moisture has been made available to the fields. For the very first time, use is being made here of the progressive method of non-mouldboard cultivation of fields. The republic's kolkhozes and sovkhozes have been supplied with adequate quantities of first class seed. [Text] [Moscow TRUD in Russian 30 Jan 81 p 1] 7026

WEATHER AND CROPS--At the moment that vegetation came to a halt, during the second half of October, the grain crop plantings thickened out on roughly 60 percent of the area under crops. It bears mentioning that owing to the complicated weather conditions the condition and degree of development of the plants were worse than at this same time last autumn. The winter was not distinguished by a constant character. Prolonged and intensive thaws were observed repeatedly, during which the maximum air temperature rose to 4-7 degrees of heat. There was no stable snow cover on the fields. Following heavy snowfalls in the early part of December, the height of the snow cover increased in the western regions of the republic to 20-45 centimeters and in the eastern regions it did not exceed 5-15 centimeters. The winter crops were not damaged by the severe frosts and the minimal soil temperature at the depth of the tillering node for the plants (3 centimeters) did not drop lower than -6, -8 degrees, that is, the critical values were not reached. Prior to the middle of December, during a thaw, the fields were completely cleared of snow and the soil in the majority of the regions thawed out completely, with shallow frozen layers remaining only in the extreme eastern regions of Latvia. Abundant precipitation and the thawing of snow led to the water-logging of the soil and to water accumulations out on the fields and the winter hardiness of the plants was lowered. During the early part of January, an inspection was conducted throughout the republic on the condition of the winter grain crop plantings. Growth samples were taken from an area of approximately 30,000 hectares. The results revealed that with a raised thinness of stand there were 7 percent samples of winter rye and the same percentage for winter wheat; roughly the same figures as for last year. During

the new cold wave and in particular during the coldest nights of 6-8 January, the temperature reached 18-24 degrees of frost in the air and 26-31 degrees in the snow. The plantings on the fields were already concealed by a snow cover 5-20 centimeters in height. During the next few days there will be a continuation of light frost weather and a small amount of precipitation in the form of snow, wet snow and glazed frost. [Text] [Riga SOVETSKAYA LATVIYA in Russian 16 Jan 81 p 3] 7026

TURKMEN SSR FIELD WORK--Turkmen SSR--Snow still lies on a large portion of the territory of our country and yet field work is in progress in southern Turkmenistan. The sowing of alfalfa and early spring crops as well as the planting of potatoes are proceeding at a maximum tempo. "The planting of potatoes during the winter has become a tradition for us" stated machine operator A. Orazdurdyyev of the Kolkhoz imeni Sverdlov in Ashkhabadskiy Rayon, "Each year we are expanding the areas occupied by the second grain and by May we are already shipping products from the new harvest to the trade network. In the case of the cotton growers, the winter field operations did not cease for one day. At the present time, they are working in a persistent manner as they strive to establish a firm foundation for the harvest. Thus the farmers in Tashauzskaya Oblast commenced irrigating their saline lands as early as December. This important operation must be carried out in the republic on 521,000 hectares. [Excerpt] [Moscow TRUD in Russian 11 Feb 81 p 1] 7026

SPRING ARRIVES IN YALTA--Yalta--Unusual weather surprises are being observed in the middle of winter along the southern shore of the Crimea. Along a road leading from Yalta to Livadiya, one encounters wild almond trees. On one such tree, healthy buds suddenly appeared. And several days later, branches which were completely devoid of leaves were covered with pink white flowers. All those who visit the green pearl of the Crimea these days -- the Nikitskiy Botanical Garden -- are presented with a picture of spring. Roses, lavander, rosemary and meadow knapweed are blossoming profusely. And in sun-warmed forest glades, early Crimean common snowdrops have made their appearance. Howeve., winter has still not departed the coastline. One merely has to ascend to Ay-Petri, where the mountain plateau is covered with snow. Here there is a true expanse for skiing enthusiasts. [Text] [Moscow TRUD in Russian 30 Jan 81 p 4] 7026

UNUSUAL WINTER MUSHROOM DISCOVERY--Yalta--While out on a stroll, a senior mechanic for a ship belonging to the Yalta maritime port, V. Maslov, never expected that he would become a mushroom gatherer on that very day. What kind of mushrooms can there be in the middle of winter? Several years ago the residents of Yalta planted hundreds of pine trees and coniferous trees on the slopes of a hill facing the sea. They took root and formed an entire grove. Under a pile of old needles which had fallen from a pine tree, the sailor found here a delicious lactarius mushroom that was giving off a strong mushroom aroma. V. Maslov decided to inspect the areas under other trees and soon thereafter he regretted not having brought along a basket. In addition to lactarius mushrooms, he also found common field mushrooms. He returned home with a yield of mushrooms that not every mushroom gatherer is able to obtain even during the height of the mushroom season. The appearance of mushrooms in mid-winter is explained by the fact that recently it was very warm and there was an abundant amount of rainfall along the southern shore of the Crimea. [Text] [Moscow TRUD in Russian 11 Feb 81 p 4] 7026

HURRICANE OVER YALTA--Yalta--The elements made their presence known in the morning. A hurricane wind with gusts up to 35 meters per second burst through the mountains. Sheets of iron and slate were torn from the roofs of Yalta buildings and cypress, palm and pine trees were bent to the ground. According to Crimean hydrometeorologists, the hurricane was of a force that had not been observed over a long period of time even during the coldest of winters. This February surprise in Yalta, which was already dressed out in its green spring finery, brought a strong cyclone down from the polar latitudes. [Text] [Moscow TRUD in Russian 13 Feb 81 p 4] 7026

CONCERNS OF BEET GROWERS--Krasnodar, 5 Feb--The Kuban' beet growers are busily making preparations to employ a leading technology in the cultivation of their valuable crop, which this year occupies 213,000 hectares. Special attention is being given to the problem of lowering the expenditures of manual labor. Towards this end, seed is being supplied for such sugar beet varieties as Pervomayskiy Poligibrid-10, Severokavkazskaya-42 and others having a raised single-shoot percentage. Personnel training has been organized based upon leading mechanized teams. This year the Kuban' beet growers have vowed to obtain no less than 315 quintals of beet roots from each hectare and to sell 6.19 million tons to the state. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 6 Feb 81 p 1] 7026

ORGANIC FERTILIZER APPLICATIONS--Lutsk, 5 Feb--On the snow covered fields in Volynskaya Oblast, more and more clumps of local organic fertilizers are appearing -- a period of 3 months has been set aside in the oblast for the accumulation and carting of these materials. Five million tons of organic fertilizer are to be supplied in behalf of this year's harvest by the kolkhoz and sovkhoz fertility detachments and the mechanized subunits of Sel'khozkhimiya. During these winter days, the tasks of the rural workers in Ivanichevskiy, Kamen'-Kashirskiy and Lyubeshovskiy rayons are being over-fulfilled to a considerable degree. Recently, for example, the application of peat and manure compost was increased to 17 tons per hectare of arable land and in Manevichskiy Rayon -- to 19.4. The planned work being carried out with organic fertilizers is making it possible to raise considerably the yields being obtained from forest district lands. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 6 Feb 81 p 1] 7026

CSO: 1824

MIXED FEED PROCUREMENT PROBLEMS IN BELORUSSIA

Minsk SEL'SKAYA GAZETA in Russian 18 Feb 81 p 3

[Article by L. Kryzhanovskiy, chief of the Main Administration of the Mixed Feed Industry of the Ministry of Procurement for the Belorussian SSR: "What Kind of Raw Materials?"]

[Text] We are still encountering incidents of consumers presenting claims against enterprises because of the poor quality of the mixed feed being supplied. These claims are being studied thoroughly and appropriate measures are being taken. However, the quality of the concentrates is dependent not only upon the enterprises of the mixed feed industry. Unfortunately, we have tens of suppliers who are failing to support us in the proper manner.

Entire batches of meat-and-bone meal, feed fat, dry skim milk, yeasts containing lysine, vitamin enriched flour and other components are not conforming to the standard requirements and they are either being returned to the supplier or subjected to repeated processing. Overall, during the past year the republic's mixed feed enterprises were supplied with 3,170 tons of low quality local raw materials. It is difficult even to compute the losses sustained by the national economy. The equipment was used to no avail, electric power was consumed, the work schedule at the processing enterprise was disrupted and, in the final analysis, the raw materials were still consigned to the dump pile. During the fourth quarter alone, the republic's meat combines supplied us with more than 250 tons of meat-and-bone meal that was unsuitable for further processing. In particular, the Minsk Meat Combine was at fault in this regard. Laboratory analysis detected unacceptable metal impurities in 91 tons of the raw material. Similar problems in the condition of their raw materials are being tolerated by the Krichev, Glubokskiy and Molodechno meat combines.

The mixed feed enterprises are submitting many claims against kolkhozes, sovkhozes and forestry farms engaged in the production of vitamin-enriched meal. Almost 300 tons were returned to the suppliers during the third quarter of last year. Poor quality work is being performed at the kolkhozes imeni Kuybyshev in Ivatsevichskiy Rayon, Zavety Il'icha in Zhabinkovskiy Rayon, Druzhba Norodov in Kobrinskiy Rayon and at the Gorodok Forestry Farm.

The principal shortcomings -- the coarseness of the milling, low carotene content and also low content of crude protein. It is forbidden to add such flour to mixed

feed. In the event of extreme need, the shortcomings of such flour should be neutralized through the addition of a protein raw material, the resources of which are extremely limited. This fact should be borne in mind by all who participate in AVM work.

We wish to address a claim against enterprises of the Ministry of Construction materials for the republic. Some of them stubbornly refuse to supply raw materials which meet the requirements set forth in the normative-technical documentation. The Novoberdovskiy Lime Plant, for example, supplies chalk having a temperature which ranges up to 100 degrees. The paper bags in which it is packed tend to decay and thereafter fall apart.

The animal husbandry farms require high quality concentrates and yet these cannot be produced from poor quality raw materials. It is hoped that all of the suppliers will produce only high quality products for us.

7026
CSO: 1824

LIVESTOCK FEED PROCUREMENT

PROPER UTILIZATION OF GRAIN FOR FEED PURPOSES STRESSED

Moscow SEL'SKAYA ZHIZN' in Russian 29 Jan 81 p 2

[Article by V. Boyev, Corresponding member of VASKhNIL and director of the Siberian Scientific Research Institute of Agricultural Economics and N. Gabitov, candidate of economic sciences and senior scientific worker, Novosibirskaya Oblast: "Proper Utilization of Grain"]

[Text] During the past few years, an increase has taken place in the production and procurement of grain throughout the country. Its intrafarm consumption has increased noticeably. During the Tenth Five-Year Plan, the farms in Siberia and the Far East on the average used almost 15 million tons of this product annually, or almost 50 percent more than the figure for the Seventh Five-Year Plan.

Such growth in the intrafarm consumption of grain is explained to a certain extent by the increase that has taken place in the number of cattle and also by certain improvements in their productivity. In addition, changes have taken place in the feed structure. For example, in 1979 and compared to 1965, the proportion of concentrates in the overall volume of feed on farms in Siberia increased from 19 to 39 percent and in the Far East -- from 24 to 44 percent.

On a majority of the kolkhozes and sovkhozes, owing to the introduction of mechanization and improved cropping power, the cultivation of grain for forage purposes became more profitable than the production of other crops. For example, in 1979, on farms in Novosibirskaya Oblast, the production cost for 1 quintal of feed units was as follows: for grain -- 6 rubles, annual grass hay -- 6.5 rubles, hay from natural haying lands -- 7 rubles and for food roots -- 21 rubles. On the average during the Tenth Five-Year Plan and from each hectare of grain planting at kolkhozes and sovkhozes in this oblast, roughly 14 quintals of feed units were obtained and in the case of other crops grown on arable land -- 10 quintals.

Under these conditions, special importance is attached to the proper utilization of grain for forage purposes. Science and practical experience have proven that the conversion over to mixed feeds is making it possible to increase the productivity of dairy cattle by 13-15 percent and that of hogs undergoing fattening regimes -- by 16-20 percent. However, analysis has revealed that insufficient use is being made of this strong and very obvious reserve. Thus, in regions of Siberia and the Far East, the proportion of mixed feeds in the rations amounts to only approximately 40 percent, including 18 percent in Altayskiy Kray, 27 percent in Chitinskaya Oblast and 20 percent in Novosibirskaya Oblast.

For feed purposes, use is being made mainly of grain mixtures consisting chiefly of cereal grains which, as is well known, lack many of the necessary protein and other components. Computations have shown that if all of the forage was processed into mixed feed, it would be possible to realize an annual savings of no less than 2 million tons of grain in the regions of Siberia and the Far East alone. Such an amount would be sufficient for obtaining 250,000-280,000 additional tons of pork, that is, a doubling of its production in this region of the country and a considerable lowering of its production costs.

Thus, in the plan "Basic Directions for the Economic and Social Development of the USSR During the 1981-1985 Period and During the Period Up To 1990," the following entry should be added: "Increased attention must be given to the development of the mixed feed industry." We are of the opinion that a special law should even be adopted aimed at limiting the use of grain for forage purposes when it is in an unprepared form. Further, we must not tolerate a situation wherein the capital investments allocated for the development of the mixed feed industry in a number of regions in Siberia are not being utilized fully.

But even in those areas where mixed feed plants are located, they are often found to be lying idle. The reason -- a shortage of protein and other additives.

Just criticism is often heard regarding the unsatisfactory quality of the mixed feeds being produced. Their use quite often results not in raising the productivity of the animals, but rather in lowering it. This occurs owing to the fact that the plants are not being satisfactorily supplied with raw materials by the food, meat and dairy, chemical and microbiological industries. And shortages in yeast, meat-and-bone and fish meal, dry milk and other components lead to an over-expenditure of grain and to a reduction in the quality of the mixed feed.

Wheat is mainly being consumed for forage purposes. In a majority of the regions of Siberia, even in suburban zones, this crop constitutes 65-80 percent of the overall volume of grain being obtained. Meanwhile, a study carried out at the Siberian Scientific Research Institute of Agriculture has shown that barley, oats, rye or peas should ideally be grown here for forage purposes, depending upon the soil-climatic conditions. And the entire crop, with the exception of the seed, should be handled according to the plan: field - elevator - mixed feed plant.

A strong reserve for the rational utilization of grain is that of improving the feed rations for cattle. In Siberia and the Far East on the whole, more than one half of the concentrates consumed are actually fed to large-horned cattle. This derives from the fact that a silage-concentrate type of feeding of the animals has developed on many of the farms. Even in rations for cows, the proportion of grain is reaching up to 35-40 percent.

An excessive increase in concentrates damages the feeding structure in cattle husbandry and on the whole exerts an adverse effect on the efficiency of the branch. On farms having a high level of grain consumption, less attention is given to improving the structure of the forage crop plantings or the land reclamation status of meadows and pastures and this in the final analysis lowers the overall productivity of the land and adversely affects the economies of the farms.

By way of confirming the above, a comparison can be made of the indicators for two sovkhozes located in the same zone in Novosibirskaya Oblast -- Chikskiy and Ordynskiy. On the first farm, during the 1976-1978 period, 33 kilograms of concentrates were consumed for the production of 1 quintal of milk and on the second farm -- 56 kilograms of concentrates. Feed consumption per quintal of milk amounted to 1.14 and 1.7 quintals of feed units respectively. At the Chikskiy Sovkhoz, each cow furnished 3,084 kilograms of milk and at the Ordynskiy Sovkhoz -- 2,760 kilograms. The production cost per quintal of output was 20.8 and 24.7 rubles respectively.

These and other examples reveal that the development of cattle husbandry, based upon the use of large volumes of concentrates, cannot be viewed as being efficient. On leading farms, extensive use is made of bulky and biologically active feed in the rations for large-horned cattle. Thus, at the Nazarovskiy Sovkhoz in Krasnodarskiy Kray, where the milk yield per cow is in excess of 3,000 kilograms annually, the forage balance for the dairy herd consists of 24 percent haylage, 11 percent hay, 16 percent silage, the same percentage of pasture and other green feeds and only approximately 30 percent concentrates.

In 1979, at the Nazarovskiy Sovkhoz, the production cost for 1 quintal of milk was 15.3 rubles and for 1 quintal of meat from large-horned cattle (in live weight) -- 63.7 rubles. The farm realized 1.2 million rubles of profit from the sale of milk and from the sale of meat -- 2.1 million rubles worth of profit. The profitability level for milk was 108 percent and for meat -- 220 percent.

There is still one other important reserve -- the proper use of straw. At the present time, in Siberia and the Far East, only 55-60 percent of the straw is being used for feed or bedding purposes. The remaining portion is being lost irrevocably. Forage is being destroyed which, if processed in the proper manner, could furnish up to one half of the annual ration for large-horned cattle.

Many processing methods are available for straw which can raise its nutritional value by a factor of 1.2 to 2. One such method is barothermal treatment; it raises the carbohydrate content in the straw to 150-200 grams per kilogram of dry substance and this makes it possible to reduce the proportion of silage and root crops in the rations for dairy cattle by 15-20 percent. In order to realize this possibility, the production of feed grinders, chaff-collectors and autoclaves must be increased.

Other reserves are available for improving feed rations and for ensuring the economic consumption of grain for forage purposes. They must be utilized to the maximum possible degree. This will promote an increase in the production of animal husbandry products and it will raise the efficiency of agricultural production on the whole.

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MEASURES FOR RAISING EFFICIENCY OF LIVESTOCK HUSBANDRY OPERATIONS REVIEWED

Moscow ZHIVOTNOVODSTVO in Russian No 11, Nov 80 pp 2-6

[Article: "Strengthening Economy of Livestock Husbandry"]

[Text] In response to the decisions handed down during the October (1980) Plenum of the CC CPSU and the Fourth Session of the USSR Supreme Soviet, the farm workers are doing everything possible to prepare in the proper manner for the 63d anniversary of the Great October, to carry out the livestock wintering operations successfully, to furnish the homeland with greater quantities of milk, meat and other products during the first year of the Eleventh Five-Year Plan and to make a worthy contribution towards the national preparations for the 26th CPSU Congress.

The Tenth Five-Year Plan became an important stage along the path towards realizing further improvements in livestock husbandry. During the past few years, the Communist Party and Soviet Government implemented an entire system of measures aimed at strengthening the economies of the kolkhozes and sovkhozes and this had a noticeable effect on the production of goods. Compared to the Seventh Five-Year Plan, the average annual production of meat during the Eighth Five-Year Plan increased by 5.5 million tons, milk -- by 28.4 million tons and eggs -- by 33 billion units.

The implementation of the party's agrarian policies made it possible to realize considerable economic and social advances in agriculture, during the years following the March (1965) Plenum of the CC CPSU. A tremendous amount of work was carried out throughout the country in connection with the intensification of livestock husbandry. The capital investment volumes for creating the production base for the branch are constantly increasing. Compared to the Eighth Five-Year Plan, when an average of 2.5 billion rubles was invested annually for the construction and equipping of livestock husbandry facilities, during the Ninth Five-Year Plan -- 5 billion rubles, and during the current five-year plan, according to preliminary data, more than 6 billion rubles.

The implementation of measures aimed at achieving kolkhoz and sovkhoz specialization and concentration of production based upon interenterprise cooperation promoted growth in output production. The modernization and expansion of existing livestock husbandry farms and the construction of complexes and poultry factories having a high level of mechanization and automation of labor-consuming processes and a modern production technology, which makes it possible, under optimum maintenance

and feeding conditions, to obtain maximum productivity for the animals and high quality output, with minimal material and labor expenditures, are being carried out on a large scale.

During a comparatively brief period of time, hundreds of large state, kolkhoz and interenterprise complexes for the production of meat and milk on an industrial basis have been created throughout the country. There are presently more than 3,000 complexes in operation, of which number 488 produce pork, 300 -- beef production, 2,120 -- milk production and 125 -- raising of heifers.

Constant attention is being given to the technical re-equipping of livestock husbandry, to raising the power-worker ratio for workers and to employing progressive technologies and new forms for the organization of labor. During the past 8 years alone, the proportion of completely mechanized farms in cattle raising and hog raising increased by a factor of 2.5-3.

During the period which has elapsed since the March (1965) Plenum of the CC CPSU, the labor productivity of the livestock breeders at kolkhozes and sovkhozes increased by 68 percent. Labor expenditures per unit of output in hog raising decreased by almost twofold and in poultry raising -- by a factor of more than 4. However, in such branches as dairy cattle husbandry and sheep raising, success has still not been achieved in reducing substantially the expenditures for labor and material resources.

During this modern stage in the development of agricultural production and in addition to increasing the production potential and employing it in a more efficient manner, another principal and decisive factor is that of conducting a thorough and comprehensive analysis of the return from capital investments, production costs and labor productivity.

The decree of the CC CPSU and the USSR Council of Ministers entitled "Improvements in Planning and Intensifying the Effect of the Economic Mechanism With Regard To Raising Production Efficiency and the Quality of Work" is aimed at solving this task. It calls for an all-round program of measures directed towards achieving high quality work and efficiency. Great importance is attached to realizing further improvements in planning at all levels of management -- from Gosplan, the USSR ministries and departments and the councils of ministers of union republics to associations, kolkhozes, sovkhozes and other enterprises. Moreover, all planning work is aimed at achieving high final results, mainly through the use of internal reserves of the national economy.

The principal path to be followed for raising the efficiency of livestock husbandry was clearly defined during the 25th CPSU Congress. The "Principal Trends For Developing the National Economy of the USSR During the 1976-1980 Period," approved during the 25th CPSU Congress, contains the statement: "Specialization and concentration in the production of livestock husbandry and poultry raising products must be developed in every possible way and these branches must gradually be converted over to an industrial basis." The advantages and positive effect of interenterprise specialization and concentration on the economies of kolkhozes and sovkhozes are clearly apparent in the operational examples offered by numerous large livestock farms, complexes and other interenterprise facilities. Experience

has shown that labor expenditures per unit of output at such facilities are lower by a factor of 2.5-3 than at non-specialized farms and production costs -- lower by a factor of 1.5-2. Many operating beef production complexes having capabilities of up to 10,000 head, such as Pashskiy in Leningrad Oblast, Mir in Brestskaya Oblast, Voronovo in Moscow Oblast and a number of others, are obtaining average daily weight increases of 1,000 grams for their animals, expending 5.6-6.0 quintals of feed units and 3.5-4.0 man-hours of labor per quintal of weight increase and their production cost per quintal of weight increase is 100-110 rubles. Thus the large sums expended for the construction of complexes are rapidly and repeatedly reimbursed. For example, 28.3 million rubles were expended for construction of the Voronovo complex, including 18.4 million rubles for production installations. Since the commencement of work on the complex (1972), more than 30 million rubles of profit have already been obtained. The overall capital investments were repaid within 5 years and the production installations -- in less than 4 years. The reimbursement for capital investments for the new construction and modernization of hog raising enterprises does not exceed 3-4 years.

A high level of economic efficiency was achieved by a dairy complex at the Sovkhoz imeni Lenin in Moscow Oblast. Here, for a milk yield of approximately 4,200 kilograms per cow, each operator obtains 337 tons of product annually, labor expenditures per quintal of milk have been reduced to 3.0 man-hours and the profitability level for milk production is 26 percent.

At the same time, many shortcomings still persist in the organization of operations at the large livestock farms and complexes. Quite often, insufficient thought is given to the specialization employed at such facilities and only weak attention is focused on the preparation of the technical-economic justifications for the feasibility of construction. Mistakes and miscalculations are often tolerated during the course of selecting the construction sites for new livestock husbandry facilities. This leads to the construction of purification installations, electric power lines, collectors and other lines of communication, in volumes which exceed the production requirements to a considerable degree. At times the plans call for the irrational use of reinforced concrete structures, rolled metal and pipe, excessive amounts of equipment and other unjustified expenditures are tolerated and the construction work itself is prolonged and carried out in a poor quality manner. These factors tend to raise the cost of construction and they adversely affect the production costs and the reimbursement of capital investments. Thus, during the past 10 years the expenditures for constructing dairy farms, per individual cattle billet, increased by more than a factor of three and, as a result, the total amount of amortization deductions per ton of milk increased during the mentioned period by a factor of 1.8 at kolkhozes and sovkhozes throughout the country. A similar trend is being observed for other types of livestock husbandry products.

The July (1978) Plenum of the CC CPSU pointed out that in the future the party will consistently implement a program aimed at systematically increasing capital investments in agriculture, such that their proportion with regard to the overall volume of resources allocated for national economic development during the Eleventh Five-Year Plan will be no lower than the level achieved.

At the same time, the party attaches special importance to increasing the return from resources invested in agriculture, while moving into the foreground the task of

improving the utilization of financial, material and labor resources at the kolkhozes and sovkhozes. This requires the adoption of additional measures aimed at raising the quality of planning and constructing livestock husbandry facilities and developing the technical-economic justifications. Special attention should be given to the correct selection of the sites, while taking into account the minimal expenditures required for developing the territory, the construction and operation of engineering networks and installations, lowering the cost of construction and the degree to which the feed base conforms to the planned production program.

In order to raise the efficiency of livestock husbandry operations, it will be necessary to improve the use of fixed capital considerably, reduce the periods of time required for mastering the planned capabilities and prevent the premature writing off of buildings and installations.

Computations reveal that the replacement of all livestock farms by new capital structures would drag out over a number of five-year plans. Thus the problem becomes one of modernizing existing farms and equipping them with all-round mechanization and automation of production processes, progressive technologies and forms for the organization of labor. Experience has shown that this costs less than the construction of new facilities. Thus, the number of livestock-billets for hogs during the 1971-1979 period, at kolkhozes and sovkhozes in the Estonian SSR, increased by a factor of 1.8, with the placing in operation of these areas ensured to 72 percent through the modernization and expansion of existing facilities and to 28 percent by means of new construction. The cost for one livestock-billet by means of modernization is cheaper by a factor of more than five than it would be for new construction.

In the complex of measures for raising the efficiency of livestock husbandry operations, special importance is attached to lowering production costs and raising labor productivity. Computations reveal that a reduction of just 1 percent in the production costs for livestock husbandry products produced during 1979 would amount to a tremendous sum -- approximately 500 million rubles.

In the structure of production costs for livestock husbandry products, a leading position is occupied by feed, the expenses for which amount to from 30 to 65 percent of all expenditures. Thus, one of the principal means for raising the efficiency and profitability of livestock husbandry operations is that of improving and reducing the cost of feed production.

During the past few years, the party and government have been carrying out large-scale measures aimed at creating a stable feed base at each kolkhoz and sovkhoz. In conformity with a decision handed down during the July (1978) Plenum of the CC CPSU, a considerable increase is called for during the Eleventh Five-Year Plan in the construction rates for feed storage facilities, in the processing of the feed and in supplying agriculture with highly productive feed harvesting equipment, polymer films, feed preservatives, protein-vitamin additives and other material resources. This will enable the kolkhozes and sovkhozes to increase their production of feed and improve the quality of the feed considerably. At the same time, despite the measures being employed on a number of farms, a shortage of coarse and succulent feed is still being experienced. Moreover, large quantities of this feed are of low quality and, as a result, the animals are being fed unbalanced rations. Incidents

involving the incorrect use of feed are being tolerated and this is resulting in the raised consumption of feed resources.

Serious concern is being displayed regarding a reduction in the hay procurement volumes. During the 1970-1979 period, the number of large-horned cattle at kolkhozes and sovkhozes increased by 21.6 million head, including cows -- by 5.5 and sheep and goats -- by 15.5 million head. At the same time, the amount of hay used for cattle feed during this same period decreased from 59 to 52 million tons and constituted only 50 percent of the normal requirements.

The increase in the cost of feed is exerting a substantial influence in that it is increasing the production costs for livestock husbandry output and the profitability level for the branch. The average cost for 1 quintal of feed units, expended at kolkhozes and sovkhozes for cattle feed, increased from 5.4 rubles in 1970 to 9.1 rubles in 1979, or by 69 percent.

An important reserve for lowering the cost of feed is that of reducing nutrient losses during the feed procurement and storage process. It has been established that the annual nutrient losses in coarse and succulent feed, under present conditions, amount to 25-35 percent. The value of these losses is estimated to be in the neighborhood of 3.5-4 billion rubles. This requires the adoption of additional measures aimed at accelerating the construction of mechanized feed storehouses and feed preparation shops at the kolkhozes and sovkhozes. The expenses for erecting modern storehouses for coarse and succulent feed will be repaid within a period of no more than 4-5 years.

Increased production efficiency at livestock farms is achieved by increasing the productivity of the animals based upon radical changes in the system of pedigree operations and by breeding and raising highly productive animals that are suitable for the conditions of an industrial technology.

The further development of dairy cattle husbandry is associated first and foremost with realizing improvements in selection-breeding operations and introducing progressive forms for production organization and a technology for the maintenance and feeding of cattle. An accelerated improvement in the great masses of cattle is possible only on the basis of proper organization of herd reproduction operations and the elimination of barrenness in the brood stock. Comrade L.I. Brezhnev, during a speech delivered on 28 August 1980 before a conference in the Central Committee of the Communist Party of Kazakhstan, focused special attention on this important reserve for developing livestock husbandry.

The task has been assigned of obtaining 90 or more calves per 100 cows and of also creating conditions for the raising of young stock which will make it possible to have heifers inseminated at the age of 16-18 months and at a live weight of 350-400 kilograms.

The experience of farms in L'vovskaya Oblast has shown that a reliable method for introducing industrial methods into operations at dairy farms is that of making extensive use of the flow line-departmental system for production organization. It is being carried out mainly through the modernization of farms, with the expenses

for one cattle billet not exceeding 100-150 rubles. For all practical purposes, this system can be "added" to either a modern complex or to a small farm for large-horn cattle.

The introduction of the flow line-departmental system enabled the oblast's farms, in addition to increasing their productivity and calf yield per 100 cows, to decrease feed consumption for the production of 1 quintal of milk to 110-130 feed units and to lower the production cost for milk to 16-20 rubles per quintal.

The principal reserves for raising efficiency in meat livestock husbandry include the intensive raising and fattening of young stock, raising the average daily weight increases and reducing the fattening periods while simultaneously increasing the delivery weights of the animals. Each year the meat combines are supplied with a considerable number of young large-horn cattle stock weighing less than 300 kilograms. Merely by fattening this young stock to 450 kilograms, the country could obtain 1 million additional tons of beef (in dressed weight). An increase in the delivery weight must be accompanied by a reduction in the raising and fattening periods. The ability to achieve a weight of 400-450 kilograms at 16-18 months of age, instead of 20-25 months, will make it possible at the present time to reduce feed expenditures per unit of output by one third.

Experience accumulated in the Ukrainian SSR is deserving of serious attention. During the past few years, studies have been carried out here on the most effective combinations of beef strains of large-horn cattle for crossing purposes and this method is being introduced into production operations on an extensive scale. During intensive fattening, hybrid young stock surpass the young stock of parent strains by 10-15 percent and more in terms of meat productivity, with 10 percent less feed being consumed per unit of weight increase.

Specialized farms for the production of pork on an industrial basis have a high level of economic efficiency. In 1979, they produced more than 26 percent of the overall volume of pork produced in the public sector. On farms of the industrial type, the labor expenditures required to produce 1 quintal of output were lower by a factor of 3-4 than at kolkhozes and sovkhozes.

By employing a progressive production technology, many specialized hog raising farms are achieving high average daily weight increases during fattening operations -- 600-650 grams or more and they are selling animals at 7-7.5 months of age weighing an average of 100-115 kilograms. Such hog raising complexes as Il'inogorskiy in Gor'kovskaya Oblast, Luzinskiy in Omskaya Oblast and Kalityanskiy in Kiyevskaya Oblast are consuming 4.2-4.5 quintals of feed units and expending 2.5-3 man-hours of labor in order to produce 1 quintal of weight increase and their production cost for 1 quintal -- 84-95 rubles. The construction of large hog raising complexes requires large initial capital investments and their operation -- high quality feed. Thus, for an extended period of time into the future, a considerable quantity of pork will be produced on the farms of non-specialized facilities, many of which have fine bases and established personnel systems and are capable of raising hogs based upon the use of potatoes, root crops and other succulent and green feeds.

The experience of leading kolkhozes and sovkhozes has shown that industrial methods can be employed successfully for hog raising operations on farms having comparatively

low production volumes. A flow line system for pork production, one which ensures the development of high economic indicators, has been introduced into operations on practically all farms in the Estonian SSR. The labor and feed expenditures per unit of output and also the output production costs at kolkhozes and sovkhozes throughout the republic are considerably lower than similar indicators at other union republics. Thus, on the average for 4 years of the Tenth Five-Year Plan, the labor expenditures per quintal of weight increase did not exceed 11 man-hours at sovkhozes throughout the republic, compared to an average of 19 man-hours for the country as a whole. The production cost for 1 quintal of weight increase amounted to 123.7 rubles and feed consumption -- 5.8 quintals; this was 17 and 33 percent lower respectively than the all-union indicators. In 1979, an average of 5.3 farrowings, or 43 young pigs, was obtained per stall throughout the republic and on the best farms -- 7 and 60-70 respectively.

The costs for the young pigs constitutes a large proportion of the pork production expenditures and thus great importance is attached to lowering the expenses involved in obtaining and raising them. According to data furnished in annual reports, the maintenance of sows at kolkhozes and sovkhozes costs 250-300 rubles annually per individual animal. Thus the greater the number of young pigs obtained and raised from each sow, the lower will be their production costs. Intensification in the use of the brood stock is making it possible to lower the production costs both for the young pigs and the pork itself. The task is one of obtaining up to 1.8 farrowings per sow annually at kolkhozes and sovkhozes and up to 2.1-2.2 farrowings at specialized complexes and large industrial farms.

The extensive use of hybridization in hog raising operations is promoting improvements in the efficiency of pork production. For example, the use of this method at the Borovskiy Complex in Minskaya Oblast made it possible to raise the productivity of the animals by 10-15 percent and the average daily weight increase during fattening to 660 grams.

Great opportunities are available for improving the efficiency of sheep raising operations. The experience of a number of republics and oblasts reveals that the kolkhozes and sovkhozes possess all of the conditions required for substantially increasing the production of mutton and improving its quality. Fine experience in carrying out intensive fattening operations at mechanized sites and interenterprise complexes has been accumulated at a number of farms in Taldy-Kurganskaya and Alma-Atinskaya Oblasts of Kazakhstan, in Stavropol'skiy Kray and in Rostovskaya and certain other oblasts, where the sheep are delivered for meat purposes only when they are in high condition and their live weight is 50 kilograms or more.

At the Rossiya Kolkhoz in Orlovskiy Rayon of Rostovskaya Oblast, 15,000 sheep the average live weight of which was 51 kilograms were fattened at a mechanized site and sold to the state during just 1 year alone, with 93 percent of the animals being in a high state of nourishment. The labor expenditures for producing 1 quintal of mutton amounted to 3.2 man-hours and the production cost -- 63.6 rubles.

Despite the achievements already realized, the productivity of the sheep and the quality of the output still remain low. This is associated to a considerable degree with the fact that the feed base has deteriorated substantially. Against an average annual feed requirement of 5.5-5.6 quintals of feed units per individual sheep,

only 3.1-3.2 quintals are actually being consumed at the kolkhozes and sovkhozes. The development of the branch in a number of large sheep raising zones still continues to be dependent upon the weather.

The task of strengthening the sheep raising economy is closely associated with improving the fattening and grazing operations, raising the live weight of delivered sheep from 37 to 42-45 kilograms and increasing the yield of lambs per 100 ewes from 86-88 to 95-100. The production of mutton can be increased by 250,000 tons through the use of these measures alone. When breeding sheep at commodity farms, extensive use must be made of industrial crossings.

The state is interested in ensuring that the kolkhozes and sovkhozes sell greater quantities of high quality milk, meat and other livestock husbandry products. The entire mechanism of procurement prices is directed towards achieving this goal.

In recent years, a considerable amount of work has been carried out at many kolkhozes and sovkhozes in connection with the all-round mechanization of labor-consuming processes in livestock husbandry and this has had a positive effect with regard to raising labor productivity. However, the experience of leading farms has shown that the introduction of all-round mechanization is effective when progressive livestock maintenance technologies are employed simultaneously. Thus, in dairy livestock husbandry, when two-stage milking is carried out using machines, a milkmaid is able to service 25-30 percent more cows than called for in the existing norms.

Progressive forms for organizing labor on the farms are being employed extensively. More than 20,000 farms are presently operating on the basis of a double-cycle schedule and a double-shift daily routine is being employed on 5,600 farms. These forms are being employed extensively in the Ukrainian SSR, Belorussian SSR, Moldavian SSR and in Sverdlovskaya, Leningrad, Omskaya and Permskaya Oblasts.

The introduction of a new technology and progressive forms for organizing labor, as a result of which the character of the work being performed by livestock husbandry workers is changing radically, is closely associated not only with growth in the logistical equipping of the farms but also, and to a considerable degree, with those who will work on the livestock farms.

Computations have shown that with further mechanization and automation of the technological processes in livestock husbandry and with development of the construction of livestock husbandry complexes and the modernization and expansion of existing farms, the labor productivity of the workers will steadily increase. This is presenting high requirements with regard to the skills possessed by the personnel in the mass professions. However, the training of personnel for the specialized livestock complexes and farms is still lagging behind the requirements of the times. Existing shortcomings in the operations of complexes which have not yet achieved their planned technical-economic indicators are explained to a considerable degree by the low qualifications of their working personnel. Many of these facilities, on the eve of their being placed in operation, were staffed by workers who, at best, were provided with superficial knowledge by means of weekly courses at existing complexes, or who became acquainted with the technological process during the course of work. During the Eleventh Five-Year Plan, the requirements for skilled livestock husbandry workers will increase considerably. The great scale of work to be carried out and

the tasks associated with raising efficiency and the quality indicators in livestock husbandry require that the agricultural organs, kolkhozes and sovkhozes consider the problem of personnel training to be one of the most important state tasks confronting them.

The solving of the tasks established during the 25th CPSU Congress with regard to raising the efficiency of agricultural production requires further strengthening by the specialists of the more important sectors of production at the kolkhozes and sovkhozes and particularly the departments, brigades, farms and other subunits of the middle echelon of production.

In connection with raising the role played by the leaders of subunits in the middle echelon of production, great importance is attached to the decree of the CC CPSU and the USSR Council of Ministers entitled "Additional Measures for Stimulating the Conversion of Agricultural Specialists Over To Working as the Leaders of Departments, Brigades, Farms and Other Subunits in the Middle Echelon of Production at Kolkhozes and Sovkhozes."

The farm leaders and specialists must devote constant attention to the economic problems. The introduction of intra-farm accounting and the systematic uncovering and utilization of production reserves will bring about improved efficiency in livestock husbandry, with no special or additional expenditures being required. The production organization and technology, wage forms and methods and material incentives employed on the farms must all be examined from an economic standpoint.

The economic work being carried out in the departments, branches, farms, brigades and other production sectors must be directed towards uncovering and ensuring more complete utilization, by each kolkhoz member and sovkhoz worker at his working position, of the reserves available for achieving economies in the use of labor and material and monetary resources. Importance is attached to publicizing on a more extensive scale the experience of specialists at leading kolkhozes and sovkhozes, in fulfilling their personal creative plans aimed at introducing scientific and practical achievements, scientific organization of labor and new equipment and technologies into production operations.

At the present time, there are economic councils, economic analysis bureaus and groups and balance committees in operation at practically all of the farms. However, in many instances they perform their tasks in a formal manner and their role in improving economic operations is not very effective. Not all of the leaders or specialists are able to provide clear or accurate responses to questions concerning reimbursement for expenditures, the causes of high output costs or the methods available for lowering production costs. Thus, one priority task is that of activating and raising the effectiveness of the economic work being carried out at the kolkhozes and sovkhozes.

The extensive intensification of production operations and the increasing investments of the state and kolkhozes in agriculture objectively require further improvements in the efficiency and quality of the work being performed in each collective. An active and persistent campaign should be launched at all economic levels aimed at achieving economies and thrift, lowering production costs, raising labor productivity in every possible way and combating mismanagement and waste.

All agricultural workers must focus a maximum amount of attention on the unconditional fulfillment of the plans and obligations for increasing th. productivity of the farms, raising production efficiency and the quality of output and making fitting preparations for the 26th CPSU Congress.

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EFFECTIVENESS OF VARIOUS BEEF PRODUCTION TECHNOLOGIES DESCRIBED

Moscow ZHIVOTNOVODSTVO in Russian No 11, Nov 80 pp 22-25

[Article by I. Cherkashchenko, Corresponding member of VASKhNIL and I. Khusainov, candidate of agricultural sciences at VNIIMZh: "Effectiveness of Various Beef Production Technologies"]

[Text] The effectiveness of beef production is greatly dependent upon the selection of a rational and economically sound technology and organization for production operations.

At the present time, the industrial fattening of cattle is being carried out at enterprises throughout the country in two directions: at large-scale mechanized farms and complexes and at fattening sites of the open and semi-open types.

There are 164 large-scale state, kolkhoz and interenterprise complexes for the production of beef, for 2 million cattle billets, in operation in the Russian Federation. The annual production of weight increase at these complexes is on the average 225,000 tons, or roughly 5 percent of the gross weight increase for large-horned cattle. The average daily weight increase for the animals is on the order of 700-800 grams, with feed expenditures per quintal of weight increase being 8.5-9.0 quintals of feed units and labor expenditures -- 8-9 man-hours. The production cost per quintal of output is 108-127 rubles. The animals are maintained at these complexes in group cages, with use being made of slotted floors. The average amount of space per animal is 2-2.5 square meters. Feed is issued using fixed or mobile equipment and the manure is removed by gravity flow. The estimated cost of construction for these complexes, taking into account the coefficient for surveying work, is 1,200-1,300 rubles per individual cattle billet.

At the present time, there are more than 1,000 mechanized year-round sites in operation in the RSFSR and more than 1,500 sites for seasonal use. Sites of the open and semi-open types are in widespread use. The open sites appear as enclosed tracts equipped with feeding troughs. The sites are built at the rate of 18-20 square meters of space per head and the front for feeding -- 0.3-0.6 meters. At times, shade overhangs are installed above the feeding troughs. Along the borders of the sites there are wind proctection barriers 2.7-3 meters in height.

In the southern regions, open type sites are built using standard plans 819-205 and 819-206 for 5,000, 10,000 and 20,000 cattle billets. For example, such sites were

built and are in operation at the Bratskiy, Proletarskiy and Veselovskiy Sovkhozes in Rostovskaya Oblast.

VNIIMZh [All-Russian Scientific Research and Planning-Technological Institute for the Mechanization of Animal Husbandry] and other institutes have developed several variants of space-planning solutions for sites of the semi-open type, having dirt and solid surface pens. It is recommended that various materials (wood, reinforced concrete and metal) be used for their construction, with boxes being arranged in the resting areas for the animals. The construction of such sites is carried out using standard plan 819-167 for 1,000-2,000 cattle billets. The cost for one cattle billet, taking into account auxiliary construction work, is 200-300 rubles.

Mechanized farms are being utilized most effectively on farms in Orenburgskaya Oblast. Their capacity is 15,000 cattle billets, for an overall cost of 25.6 million rubles, or 222.6 rubles per individual cattle billet. Each year, 90,000-95,000 head of cattle, the average weight of which is 390-400 kilograms, are fattened at such sites; the average daily increase in weight is 690-700 grams, with labor expenditures per quintal of output being 7-8 man-hours and feed expenditures -- 9-10 quintals of feed units. The production cost for 1 quintal of weight increase is on the average 110 rubles. The overall profit realized from the sale of fattened cattle at the sites -- 20-25 million rubles annually.

One important question in connection with the fattening of cattle at these sites is the possibility of their being employed effectively during the winter. In this regard, we conducted a series of scientific-economic experiments during the 1976-1978 period aimed at comparing the fattening of cattle during the winter in capital facilities (control) against fattening carried out at sites of the semi-open type (experiment) in different climatic zones of the country (see Table 1).

It is apparent from the table that cattle fattening during the winter can be carried out at sites of the semi-open type on farms in Siberia, the north Caucasus and the central regions of the country. The results of cattle fattening carried out at sites are greatly dependent upon the level of feeding. For example, when the cattle were fed at a rate to produce a daily weight increase of 900-1,000 grams, the fattening at a site was more effective than that carried out in capital facilities having uncontrolled microclimates. Under the same climatic conditions, but with the feeding calculated to produce a weight increase of 500-600 grams daily, the fattening of cattle at a site produced worse results than fattening in a facility. The effectiveness of cattle fattening carried out in capital facilities is dependent upon the possibility of creating an optimum microclimate in them. Thus, when cattle were fattened (at a complex of the Voronovo Sovkhoz in Moscow Oblast) in buildings having controlled microclimates and warm air heating, better results were obtained from fattening carried out in a facility than at a site.

In buildings of reinforced concrete construction, which were used for maintenance of the animals in the control group, with a natural system of ventilation, a great deficit of heat was noted. As a result, the humidity in the facilities reached 95-100 percent, condensation appeared on the walls and ceilings and the woolen coats of the animals were constantly damp.

Our studies revealed that the heat losses caused by convection and radiation, among animals located in facilities having a temperature of plus 5-10°C but with a raised

Table 1

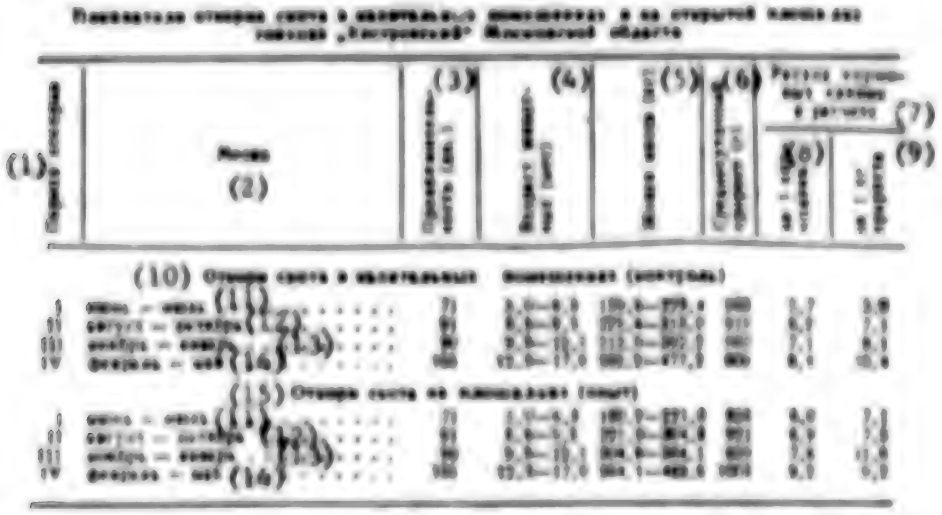
Effectiveness of Fattening of Large-Horned Cattle at Facilities and Sites of the Semi-Open Type, in Various Zones During the Winter

Location Where Experiment Carried Out	Conditions of Experiment	Number of Animals (Nr. of head)	Duration of Experiment (days)	Weight of Animals (kg)		Average Daily Weight Increase (grams)	Feed Expenditures Per Quintal of Weight Increase (quintals of feed units)
				At Beginning of Experiment	At End of Experiment		
Feeding Level for Cattle at Rate of 0.9-1.0 kg of Daily Weight Increase							
Timashevsk Agroindustrial Association for fattening of cattle, Krasnodarskiy Kray	In closed facilities	50	93	300	390	965	8.1
	At a site	50	93	301	410	1174	7.1
Feeding Level for Cattle at Rate of 0.7-0.8 kg of Daily Weight Increase							
Put' K Kommunizmu Kolkhoz, Tyumenskaya Oblast	In closed facilities	70	149	266	374	721	8.7
	At a site	70	149	270	385	773	8.9
Feeding Level at Rate for Obtaining 0.5-0.9 kg of Daily Weight Increase							
Tikhoretsk Sovkhoz, Krasnodarskiy Kray	In closed facilities	10	206	297	415	572	9.6
	At a site	10	225	295	410	509	10.6
Feeding Level at Rate for Obtaining 0.9-1.0 kg of Daily Weight Increase							
Complex at Voronc[illegible] Sovkhoz, Moscow Oblast	In closed facilities	36	133	318	449	982	7.1
	At a site	36	133	336	452	880	8.5

humidity (for example, 220.4-227.3 Vt/m^2), were the same as when the cattle were maintained at sites where the air temperature was minus 20°C (220.9-250.0 Vt/m^2). In addition, when the animals were maintained in facilities having a high moisture content, their appetite fell sharply and this was reflected in the weight increases and in the payments for feed. The animals in the experimental group consumed 7.8-9.9 kg of dry substance daily, or 141.9-180.2 MDzh of energy and those in the control group -- 7.1-8.2 kg and 129.2-149.2 MDzh respectively. The cellulose content in the ration for animals in the experimental group was 22-24 percent of the dry feed substance and for the control group -- 18-20 percent. Each day the animals in the experimental group consumed 1-1.7 more kilograms of straw than those in the control group.

Table 2

Indicators for Fattening of Cattle in Capital Facilities and At an Open Site of the Kostrovskiy Sovkhoz in Moscow Oblast



Key:

1. Fattening period
2. Month
3. Duration (days)
4. Age of animals (months)
5. Live weight (kg)
6. Average daily weight increase, (grams)
7. Expenditure of feed units, per...
8. Feed-day
9. Kilogram of weight increase
10. Fattening of cattle in capital facilities (control)
11. June - July
12. August - October
13. November - January
14. February - May
15. Fattening of cattle at sites (experiment)

The scientific-economic experiments carried out in 1978-1979 at the Kostrovskiy Sovkhoz in Moscow Oblast (with the participation of A. Delyan) revealed that the transfer of animals from facilities directly to open sites adversely affects increases in weight and feed payments, during both summer and winter and throughout a definite adaptation period. Thereafter the growth energy of the animals at the site increases sharply and the results level off with those obtained from the fattening of cattle in facilities (see Table 2).

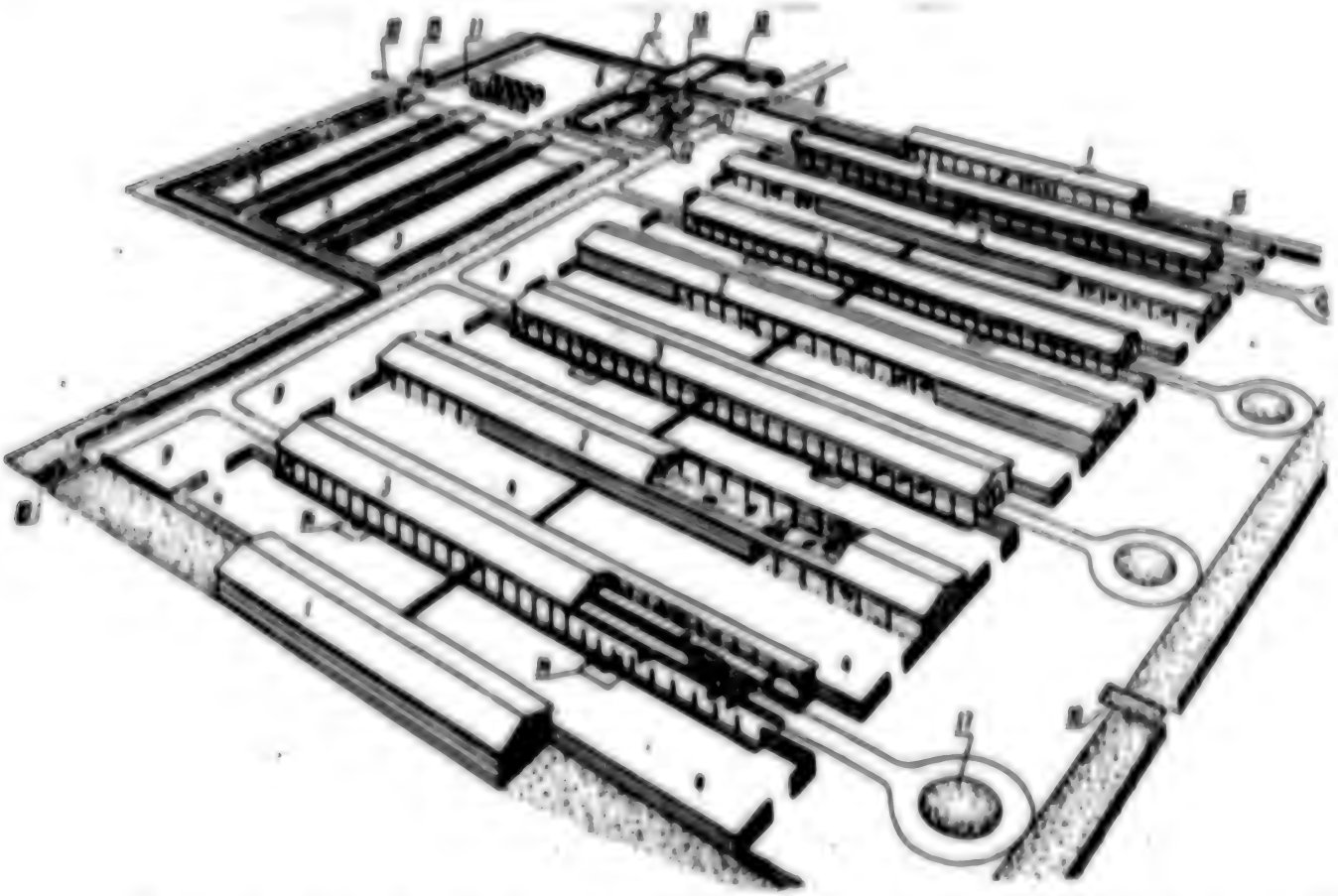


Figure 1. Site for the fattening of young long-horned cattle stock for 2,000 cattle-billets (Standard Plan 819-167)

Key:

1. Shed for resting of animals, for 250 cattle-billets
2. Shed for resting -- for 500 cattle-billets
3. Shed for feeding troughs
4. Exercise areas
5. Silage trenches
6. Area for coarse feed and bedding
7. Preparation area
8. Area for loading and unloading of animals
9. Areas for temporary storage of manure
10. Desbar"yer
11. BSK-10 hoppers for concentrated feed
12. Transformer substation
13. Motor vehicle scale
14. AGK-ChA automatic watering bowl
15. Liquid-manure tank
16. Veterinary dispensary
17. Area for turning around of feed distributors
18. Pier for loading of animals

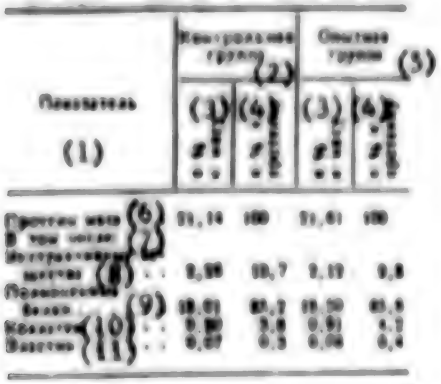
It is apparent from Table 2 that the weight increase for animals at the site decreased during the adaptation period in summer by 127 grams per head daily and during the winter -- by 221 grams. Following the adaptation period the average daily weight increase at the site during the summer was practically the same as that for the facilities and during the winter -- it was even 24 percent higher. Throughout the entire experimental period (357 days), the average daily increase in

weight for the animals included in the experiment remained at practically the same level (862-888 grams). The feed consumption per unit of weight increase for animals maintained at the site was 10 percent higher than that for the facility. The daily over-expenditure of feed for each animal at the site, during the period of the experiment, included 156 grams of concentrated feed, 269 grams of hay, 733 grams of straw and 392 grams of fodder (0.5 feed units).

The effectiveness of fattening at a site is greatly dependent upon the strain of cattle employed. It is known that beef strains of cattle and their hybrids possess greater resistance against low temperatures. Thus the natural heat insulation of young large-horned cattle stock of beef strains, which are adapted to low environmental temperatures, is 2.8-3.2 klo (unit of heat insulation for animals, equal to 0.155 m^2 °S/VT), or 25-30 percent higher than that for dairy strains of cattle.

Table 3

Protein Structure of Meat of Experimental Animals at the Voronovo Sovkhoz Complex in Moscow Oblast



Key:
1. Indicator
2. Control group
3. In % of meat
4. In % of protein
5. Experimental group
6. Protein of meat
7. Including:
8. Extractive substances
9. Full value proteins
10. Collagen
11. Elastin

Scientific-production experiments carried out at the Moskalevskiy Sovkhoz in Kustanayskaya Oblast, in connection with the fattening of cattle of the Kazakh Belogolovaya, Charolais and Aberdeen Angus strains and their hybrids, at a site involving the use of rations having a high content of straw (6-8 kilograms) and concentrated feed (3-3.5 kilograms), revealed that the average daily weight increase for the animals was on the order of 825-954 grams, with expenditures of 9.7-10.4 feed units per kilogram of weight increase. Over a period of 8 years (1971-1978) at the sovkhoz, using this technology, 10,600 head of cattle, the average weight of which was 462 kilograms, were fattened and turned over to the state.

One of the most important criteria for evaluating the various animal maintenance systems is that of the quantity and quality of the products obtained. The results

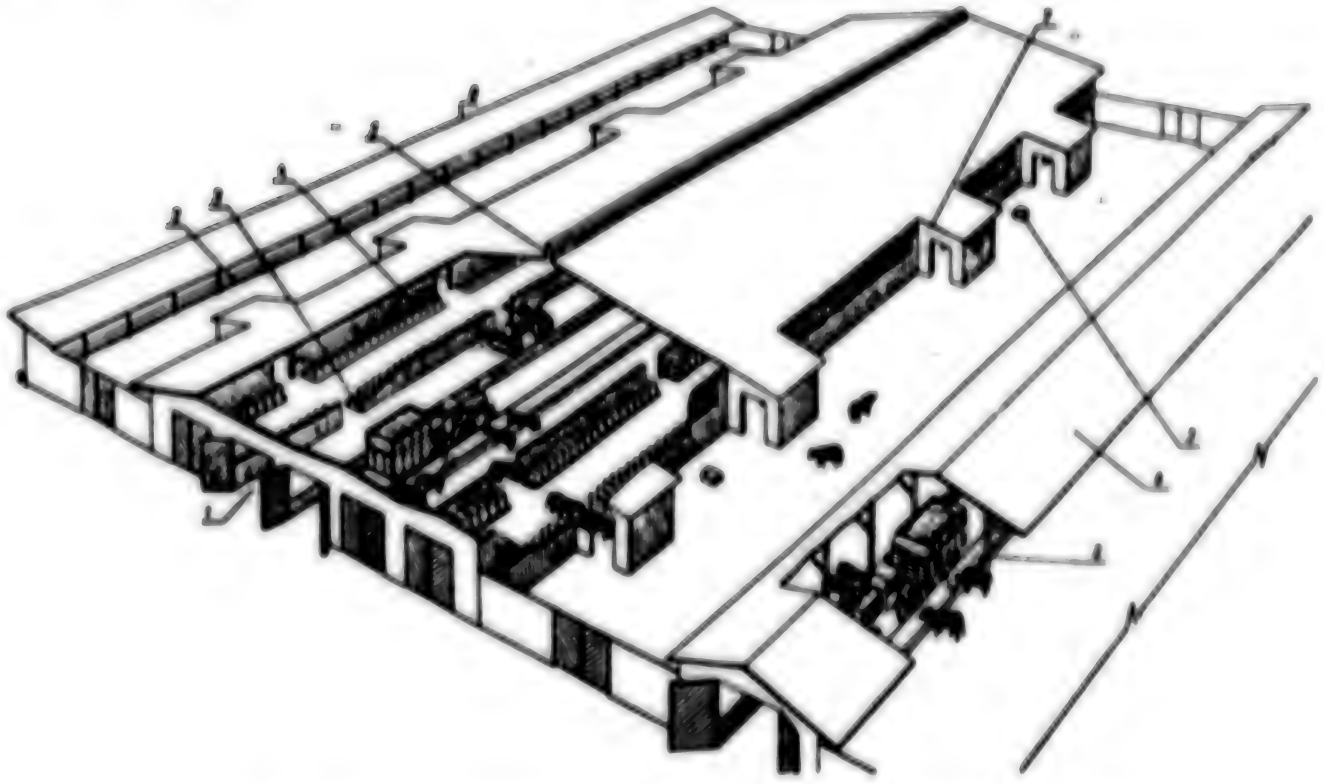


Figure 2. Adaptation arrangement for 300 head of young long-horned cattle stock

Key:

1. Feed passage
2. Feeding trough
3. Group watering bowl
4. Boxes for resting of animals
5. Ventilation opening
6. Shed
7. Entrance area

of controlled slaughtering revealed that the overall slaughtering weight of the experiment animals was practically the same. However, the mass of fat in animals which had been fattened in a facility was on the order of 3.5-4 percent of the pre-slaughtering weight and for those fattened at a site -- only 1.5-2 percent. The meat of animals maintained in facilities is characterized by a high fat content. The energy value of 1 kilogram of such meat is 7,663 kDzh, or 8 percent higher than that for animals fattened at a site. Conversely, the content of nitrogenous substances (protein) is somewhat greater in the meat of those animals included in the experiment (see Table 3).

It is apparent from Table 3 that the relative proportion of connective tissue proteins in the meat of animals fattened at a site is somewhat higher than that for the control group. Nevertheless, the protein value of the meat of the experimental animals was considerably better. The nutritional and taste value of the meat is evaluated based upon its tryptophan content, which describes the high quality of the proteins and oxyproline -- which describes their lack of quality. In our experiment, the tryptophan content in the meat of the experimental animals was 32.8 percent higher and the oxyproline content only 13.4 percent higher than the figures

for the control group. Thus the ratio of tryptophan to oxyproline in the experiment was 3.7 and in control -- 3.19 percent. The prolonged hypo-dynamism of cattle when maintained in facilities obviously leads to a disruption in the mechanism for storing glycogen in the muscles and this affects the process of lactic acid formation in the meat following slaughtering and the maintenance of the environmental reaction at the bacteriostatic level. Thus the concentration of hydrogen ions in the longest muscle of the spine, among animals in the experimental group and immediately following slaughtering, was 6.3 and in control -- 6.2; after 24 hours had elapsed, the figures were 5.7 and 6.0 respectively and after 48 hours -- 5.5 and 6.1. Thus the meat of animals maintained at sites is suitable for more prolonged storage. In addition, the fattening of cattle at a site makes it possible to obtain high quality meat having a high protein content.

The selection of a particular production system for construction is conditioned by the economic opportunities available and their economic feasibility. In order to evaluate the effectiveness of capital investments in the construction of facilities and sites, a comparative analysis was carried out on the maintenance of animals in capital buildings having controlled microclimates and at sites having high feeding levels (see Table 4). It is apparent from Table 4 that the fattening of cattle at sites, based upon definite economic indicators, has its own particular advantages.

In addition, the introduction of fattening sites into production operations reduces the construction lag considerably, that is, the pause in time between the utilization of capital investments and the actual results realized from their use. In our country, the average lag in the construction of animal husbandry facilities is 2-2.5 years, instead of 8-10 months for the construction of sites. The production of beef at sites is making it possible to utilize machines and equipment more efficiently, to reduce labor expenditures per unit of output by a factor of 2-3 and to lower electric power and heat expenditures considerably. The construction of sites requires 0.5-1 cubic meter of concrete and 30-50 kilograms of metal per animal and for the construction of capital facilities -- 2.5 cubic meters of concrete and 500 kilograms of metal.

It bears mentioning that fattening sites account only for the final portion of the beef production technology and not the entire technological process. Based upon study materials and summaries of the leading operational experience of farms specializing in the production of beef in various zones throughout the country, the All-Russian Scientific-Research and Planning-Technological Institute for the Mechanization of Animal Husbandry developed eight technological variants for beef production complexes, all of which call for a complete production cycle -- the raising, maturing and fattening of young stock. A distinct feature of such solutions is the combining, at a farm, of capital buildings with fattening sites of the semi-open type. The capital facilities are used for raising the calves and the sites -- for fattening (see Figure 1).

In view of the fact that when transferring cattle over to sites, especially during the autumn and winter periods, a considerable reduction is noted in the weight increases for the cattle and also a simultaneous lowering of feed payments, compared to fattening carried out in capital facilities having controlled microclimates, the proposal has been made to use simplified adaptation-facilities (see Figure 2) in the form of multiple purpose complexes. These buildings make it possible to adapt better

Table 4

Comparative Data for Fattening of Cattle in Capital Facilities and at Mechanized Sites

Indicator	Fattening of Cattle	
	In Capital Buildings	At a Site
Capital investments for 1 cattle billet (rubles)	822	222.6
Average daily increase in weight for 1 cattle billet (grams)	982	880
Annual gross increase in weight per million rubles of capital investments (tons)	436	1443
Labor expenditures per ton of increase in weight (man-hours)	32	14
Feed expenditures per ton of increase in weight (thousands of feed units)	7.1	8.5
Production cost per ton of increase in weight (rubles)	1135	1280
Profit per million rubles of capital investments (thousands of rubles)	102.4	129.9

Note. The specific capital investments for construction, labor expenditures and the production cost for increases in weight were determined based upon the average actual data for the 1976-1978 period on fattening farms in Moscow and Orenburgskaya Oblasts. The average daily weight increase for the animals and the labor expenditures were established based upon the experiments.

to the effects of adverse environmental factors and to maintain continuity in the technological chain for the raising, maturing and fattening of cattle during the cold period of the year, without lowering the weight increases in the animals or the return being realized from the feed.

The calves are maintained in the capital facilities during the lactation (60 days) and post-lactation (up to 120 days) periods and in the simplified adaptation-facilities -- during the maturing (60-90 days) and at sites of the semi-open type -- during the fattening period (250-300 days).

At the present time, based upon one of the variants for beef production complexes of the multiple purpose type, planning-estimates documentation has been developed for an enterprise for the raising and fattening of 3,000 head of cattle annually at the Put' Lenina Sovkhoz in Morkinskiy Rayon in the Mariyskaya ASSR. The estimated cost for 1 cattle billet is 580 rubles.

Thus, for the purpose of increasing the production of beef as rapidly as possible and with minimal capital expenditures, it is deemed advisable, in addition to capital buildings, to utilize semi-open mechanized sites in those areas where favorable natural, climatic and economic conditions make it possible to do so.

7026
CSO: 1824

USE OF SHEEP, GOATS FOR AUGMENTING MILK PRODUCTION URGED

Ashkhabad SEL'SKOYE KHOZYAYSTVO TURKMENISTANA in Russian No 11, Nov 80 pp 16-17

[Article by D. Koynekov, adviser to the Council of Ministers of the Turkmen SSR and A. Redzhepov, candidate of Veterinary Sciences, supernumary inspector for the People's Control Committee of the Turkmen SSR and head of the Helminthology Laboratory of the Turkmen Scientific Research Institute of Animal Husbandry and Veterinary Medicine: "An Important Reserve for Increasing the Production of Milk"]

[Text] In many states throughout the world, including France, the Democratic Republic of Afghanistan and Bulgaria, the milking of sheep and goats has been carried out over a long period of time. Thus, for example, the milk obtained from such livestock in Afghanistan constitutes 70 percent of the overall production of this product and in Bulgaria -- 24 percent.

Proper use is also being made of these important reserves of sheep and goat raising in Armenia, Azerbaijan, Moldavia, the Ukraine, the Dagestanskaya ASSR, the Severo-Osetinskaya ASSR and in certain other zones of our country. For example, an average of 15,400 tons of sheep and goat's milk is produced annually in the Azerbaijan SSR and in Armenia -- 150,000 tons, or 25 percent of the total amount of milk produced.

The principal trend in sheep raising in our republic is that of breeding sheep of the Karakul strain, which accounts for 85 percent of the overall number of sheep. Sheep of the Saradzhinskaya strain are also being bred successfully on farms in the western rayons. Some farms in this zone are continuing to breed Merino sheep and Angora goats.

Up until recently, sheep and goats were milked on many farms throughout the republic and also in the private sector. As a result of having organized this measure, several tens of thousands of tons of additional milk were obtained.

The milking of Karakul ewes, from whom the lambs are taken at 1-3 days of age for slaughtering purposes, is not only advisable but in fact it is physiologically necessary. Science has established the fact that the milking of sheep promotes the development of their mammary glands and at the same time it protects the animals against the severe disease of mastitis (inflammation of the udders). Meanwhile, the republic's farms are sustaining considerable losses in sheep and goats owing to this disease.

It is known that sheep's milk is rather high in calories. It contains a large amount of rich proteins (6 percent) and readily assimilable fats. The fat content of the milk is 6-8 percent. The principal products of sheep and goat's milk -- cream butter and pot butter, cheese, sheep cheese, cottage cheese, cream and others.

In our republic, taking into account the conditions of scientific-technical progress and the planned growth in consumer requirements for dairy products, it is unfortunate that these reserves of animal husbandry are clearly not being employed adequately.

It is sufficient to note that in recent years the milking of sheep has been carried out only at the Leningrad Kolkhoz in Karakumskiy Rayon and at some farms in Kaakhkinskiy and Serakhskiy rayons. In 1980, for example, the milking of sheep in a flock numbering 800 ewes was carried out at the Leningrad Kolkhoz in Karakumskiy Rayon. They were milked once a day. One milkmaid milked 100 sheep in 2.5 hours.

Deserving of great attention is an experiment in the machine milking of sheep, which was organized and carried out successfully by Candidate of Technical Sciences and assistant professor at TSKhI [Turkmen Agricultural Institute] Ch. Atayev. It was conducted in 1972 and 1973 at the Kolkhoz imeni Menzhinskiy in Kaakhkinskiy Rayon and at the Bakharden Sovkhoz in Bakhardenskiy Rayon. A special milking apparatus and an arrangement for the milking of Karakul sheep, under the conditions found in the republic, were developed and checked by Ch. Atayev. This arrangement, in addition to the milking units, includes a system for immobilizing the animals during the milking process. The milking arrangement calls for the use of a production line milking process. The system is serviced by two milkers and one mechanic -- he moves the sheep from place to place.

The system makes possible the simultaneous milking of nine sheep and the milking of a flock of 800 head in just 1.5-2 hours.

The milking arrangement also includes equipment for the preparation of sheep cheese under production conditions.

In short, the introduction into operations on the farms of a machine milking system for sheep will make it possible to raise the labor productivity of the milkmaids and improve the quality of the milk being obtained.

In our republic, the annual savings realized from a reduction in operating expenses for one such system will amount to 1,477 rubles.

In Turkmenistan, a differentiated approach is required for organizing the milking of sheep and goats. On farms where the leading branch is cotton growing, the introduction of sheep milking must be carried out taking into account the seasonal nature of other agricultural measures. During certain low productivity years, when unfavorable climatic conditions prevail, additional feedings could be organized for the milking sheep.

We are of the opinion that the milking of sheep should be organized on farms in Kushkinskiy, Kaakhkinskiy, Gyaurskiy, Ashkhabadskiy, Geok-Tepinskiy, Bakhardenskiy, Kizyl-Arvatskiy, Kazandzhikskiy and in the remaining western rayons of the republic.

This measure must also be introduced into operations, by stages, at the Uch-Adzhi and Ravnina breeding plants, at the Leninizm and imeni XXII Parts"yezda sovkhozes in Bayram-Aliyskiy Rayon and at the Talimardzhan and Amu-Dar'ya sovkhozes in Dostlukskiy Rayon. To the degree that it is possible to do so, the milking of sheep can be organized at other sovkhozes and kolkhozes and also in the industrial sector.

It is recommended that the milking of sheep and goats (commencing when they are 3 years of age) be carried out during the grass growing season (March - April), at which time the nutrient requirements of small cattle are completely satisfied. The duration of the milking -- no less than 45 days.

In connection with the future introduction of sheep and goat milking into operations, considerable thought should be given to those problems concerned with the primary treatment and processing of this valuable raw material. Departments for the production of sheep cheese and other cheeses should be established on the larger farms. Here it will also be possible to prepare cream butter and pot butter, cottage cheese, kefir, cream and other dairy products. The production of sheep cheese and other cheeses from sheeps' milk must also be organized at dairy plants and their stations.

We believe that the acceptance of sheep and goat's milk should be organized through the ministries of procurements and meat and dairy industry of the republic and also through their subordinate organizations. It should be established that the sheep and goat's milk accepted from the farms can be credited towards fulfillment of the state plan for milk.

Those sovkhozes and kolkhozes which have successfully completed their sheep and goat milking season should ideally be allocated additional concentrated feed for each milking ewe from the fund of the republic's Council of Ministers. Similar privileges must be extended also to the farms in the private sector.

Those sovkhozes and kolkhozes which achieved high indicators in the production of sheep milk can be awarded motor vehicles with refrigeration units, milk lorries or other types of motor transport equipment.

Ideally, material and moral incentives should also be awarded to those workers and specialists who participated actively in organizing and introducing the milking of sheep and goats.

Wage norms must be developed for the milkers and also standards and a task for planning a station for the treatment and processing of sheep milk. Plans should go forward aimed at ensuring that the farms have the equipment required for the milking operations and for processing the milk.

It is possible to organize the milking of more than 1 million head of sheep and goats on the republic's farms. Each of these ewes is capable of producing no less than 30 liters of milk annually, with a fat content of 6-8 percent. The milking of such a quantity of sheep would make it possible to obtain no less than 30,000 additional tons of this valuable product. If one considers that 1 liter of sheep's milk with its fat content of 6 percent is equivalent to 1.57 liters of cow's milk, then the additional production of this product will amount to more than 45,000 tons annually, or more than 30 percent of the republic's annual plan for milk production.

Approximately 6,000 tons of cheese and sheep cheese can be prepared from this high calorie sheep's milk. When one considers that the price for 1 kilogram of sheep cheese is 1 ruble and 40 kopecks, then it is easy to understand that the monetary income for the republic from the sale of this dairy product could amount to approximately 8.5 million rubles annually.

More than 200,000 Karakul ewes are to be found on the farms in Kushkinskiy Rayon. If the milking of 50 percent of these ewes is organized, then it will be possible to obtain 3,000 additional tons of milk. The 1980 milk production plan for this rayon as a whole is 1,583 tons.

The production volume for sheep's milk on farms having 60,000 sheep will be roughly 450 tons annually. This amount of milk is sufficient for producing approximately 90 tons of sheep cheese. The farm will realize a monetary income of 126,000 rubles from the sale of this product.

All of this constitutes a reserve which must be placed in operation.

7026
CSO: 1824

KECHUTSKOYE RESERVOIR PLACED IN OPERATION

Yerevan KOMMUNIST in Russian 17 Sep 80 p 1

[Article by M. Markaryan, A. Gasparyan and G. Arutyunyan, Kechutskiy Sector of Arpa-Sevan: "Kechutskoye Reservoir -- In Operation"]

[Text] The road leading to Dzhermuk suddenly draws up alongside a dam and it appears that the dam is the creation not of human hands but rather of nature itself. This erroneous impression disappears upon seeing drilling machines, which have been installed at the dam, etched against the cloudless sky.

And here is the basin of the reservoir. In all probability, the Arpa River, surrounded on all sides by cliffs, formerly rushed through this area in a mad frenzy as it forged its own path. And the builders selected this narrow canyon and erected an artificial barrier.

The Kechutskiy Sector of the Arpa-Sevan. For many years it has drawn the attention of workers throughout the republic, who followed the difficult construction operations and were pleased by each success achieved through the selfless efforts of the hydraulic engineers. And today a dam has been built here -- a complicated engineering complex having a water scoop of the Margaritka type, an irrigation tunnel and other installations. It is here that the life-giving artery of Sevan will commence -- an artery which will serve to guarantee its perpetuity.

The Arpa-Sevan construction project symbolizes friendship and brotherhood among people. Here, the representatives of 29 nationalities of our homeland are working shoulder to shoulder and once again the indestructible unity of the peoples of the USSR has been demonstrated.

A truly titanic amount of work has been carried out since the day that the first cubic meter of concrete was laid, up until the present day. For creating the dam, which is 214 meters long, approximately 500,000 cubic meters of basalt rock were required. The dam is protected on two sides by a triple layer casing made out of basalt, gravel and sand. By no means was it easy to fill the center, which consisted of loamy soil. Special machines were used for tamping it down until finally it became water-tight. Thus, layer by layer and centimeter after centimeter, the dam 48.5 meters in height was erected.

Foreman Firdusi Davtyan stands out as one of the veterans of the Arpa-Sevan construction project. He was the chief of a motor transport column and he recalls

very well the difficulties encountered by the builders during the stern winter and under bad road conditions. Such drivers as Garnik Galstyan, Rubik Yegiazaryan, Garnik Movsesyan and Agasi Akopyan delivered hundreds of cubic meters of basalt, gravel and other materials to the construction site on a daily basis.

Excavator operator Rafik Arutyunyan and bulldozer operator Pavlik Arakelyan performed their tasks in a selfless manner.

Many of the builders have already transferred to other projects and yet Onik Khodzhayan and Khachik Grigoryan continue to remain here, often carrying out tasks not associated with their principal specialty.

A multi-purpose brigade is headed by Viktor Sogomonyak. Its members -- Gevork Ovakimyan, David Mkrtchyan, Frunzik Davtyan, Levon Khachatryan and others are carrying out the last items of work concerned with the laying of concrete, finishing off operations and sanitary cleaning. Some mention should be made regarding sanitation. The reservoir will satisfy the requirements of a considerable portion of the village of Kechut. And thus the Kechut Sector of the Arpa-Sevan Construction Project has devoted special attention to those problems concerned with the cleanliness of the reservoir.

The chief of the sector, Khoren Khodzhayan, showed us, as though for the last time, that all was in readiness. Khodzhayan is an experienced mining engineer who has worked for the past 10 years on the most complicated sectors of the underground water main and now he is working on the leading unit.

Here is the portal of the tunnel, prepared to accept the water of the Arpa River. The water-receiving unit was long ago installed and approved. Fitters Sergey Ovakimyan and Arshavir Khachatryan, under the direction of mechanic Al'bert Mirzoyan, installed the locks, which are lowered and raised in a matter of just several minutes and, when necessary, can be used for immediately shutting off the portal. This is required only when repair work must be carried out in the tunnel.

The locks for a 230 meter irrigation tunnel were also installed with a great reserve of strength.

In a matter of just several minutes, the lock for the construction tunnel will be lowered forever. Twin steel plates each weighing 4.5 tons will close off the tunnel's exit. And the builders will seal off the 14 meter opening with concrete, for which purpose 600 cubic meters of solution will be required. The cliffs to which the dam is connected and its entire base have been reinforced by forcing cement, under pressure, into wells which are up to 80 meters in depth. This is delicate work requiring both skill and experience on the part of the workers and specialists. The work was carried out by the collective of Sector No. 12 of Gidrospetsstroy.

"After the entire dam had been prepared, we began installing the drilled-concrete walls" related the chief of the sector Karlen Gulyan, "Cable-drilling machines were used for digging 16-meter wells having a diameter of 60 centimeters and in a manner such that they intersected one another. They were subsequently filled with a solution of cement and clay. An extensive wall was obtained in the center, one

which precluded the possibility of even minimal water seepage. We are presently drilling the last wells. Until the water reaches a level of 40 meters, we will continue to carry out this work."

The chief of the sector has every reason to be confident of this fact. Drilling specialists Genrizh Nikolyan, Isazh Kareliyev, Yuriy Antonyan and Vasiliy Okorokov are each drilling a well each day. As for Gulyan himself, for 20 years he has directed the work of reinforcing hydroelectric engineering construction projects and he has participated in the construction of dams for the Mantashskiy, Karnutskiy and Azatskiy reservoirs and a dam for the Yerevan GES on the Inguri River in the Georgian SSR.

The most complicated process is that of injecting the cement. This is carried out in the following manner: a well is drilled to 5 meters and thereafter a cement solution is forced in under a pressure of 10-12 atmospheres until finally the well is completely filled. This means that the cracks in the rock have been filled in all directions.

Foreman Vanik Akopyan remains constantly at the drilling machines, controlling their operation.

The Kechutskoye Reservoir adjoins the southern part of the city and it will become a recreation zone not only for the residents of a resort but also for the republic's workers.

The mountain landscape with its man-made sea is further enriched by an emerald green forest and clean air -- all of this will be used to improve the health of the population. An asphalt road 7 meters in width runs alongside the dam, connecting the recreation zone with the city and with the Dzhermuk-Yereval highway. Thus, it is just not Sevan that is awaiting completion of construction work on the dam.

The builders, having launched their labor watch in honor of the 26th CPSU Congress, achieved a new and important victory in connection with placing the entire construction project in operation.

A number of officials came to share the joy of the celebrated builders of the Arpa-Sevan project: the 1st secretary of the Central Committee of the Communist Party of Armenia K. Demirchyan, secretary of the Central Committee of the Communist Party of Armenia V. Galumyan and also K. Dallakyan, the head of the Department of Construction and Municipal Economy of the Central Committee of the Communist Party of Armenia S. Mutafin, the administrator of the Central Committee of the Communist Party of Armenia G. Karapetyan, the 1st secretary of the Azizbekovskiy Rayon Party Committee O. Akopyan, the 1st secretary of the Yekhegnadzorskiy Rayon Party Committee M. Ayrapetyan and chairman of the Executive Committee of the Dzhermuk Municipal Soviet Z. Vartanyan.

Comrade K. Demirchyan warmly congratulated the builders on placing the Kechutskoye Reservoir in operation and he wished them new labor successes. He visited all of the elements of the sector, acquainted himself with the results of the work carried out and he held discussions with the builders.

Although daybreak had already arrived, the sun's rays were still not touching the surface of the water -- they could not penetrate easily into the deep canyon. The faces of the builders were glowing with happiness and all were impatiently awaiting that moment for which they had overcome numerous difficulties.

The mining engineers and guests from Yerevan and neighboring rayons gathered together at the construction tunnel.

While those present were applauding loudly, the steel plate which covers the tunnel was slowly lowered.

A memorial capsule containing a statement to succeeding generations was left in the closed tunnel. The water of the mountain river, foaming and seething, gradually began to rise. In this manner it would thus fill the basin of the reservoir and thereafter continue on to Sevan which, with similar impatience, was awaiting the arrival of this life-giving moisture.

The Kechutskoye Reservoir -- in operation!

7026
CSO: 1824

TRADE UNION OFFICIAL DISCUSSES DEVELOPMENT OF SUBSIDIARY FARMS OF ENTERPRISES

Moscow TRUD in Russian 25 Jan 81 p 2

[Article by L. Kubyak, head of Department of Housing and Domestic Services of AUCCTU: "Agrarian Department of an Enterprise"]

[Text] In a speech delivered before the October (1980) Plenum of the CC CPSU, Comrade L.I. Brezhnev emphasized that among the problems upon which the standard of living of Soviet people is dependent, first place is occupied by the need for implementing improvements in the supply of food goods. In carrying out the food program, an important role must be played by subsidiary agricultural enterprises. This is emphasized in the draft "Basic Directions for the Economic and Social Development of the USSR During the 1981-1985 Period and for the Period Up To 1990."

More than 2 years have passed since publication of the decree of the CC CPSU and the USSR Council of Ministers entitled "Subsidiary Farms of Enterprises, Organizations and Institutes and the decree handed down by the Presidium of the AUCCTU on the same subject and the results are already becoming apparent. In 1979 alone, more than 1,000 subsidiary farms were created throughout the country as a whole. For the creation and expansion of their logistical base, USSR Gosbank and Stroybank [All-Union Bank for the Financing of Capital Investments] allocated more than 200 million rubles worth of long-term credit among 30 ministries during 1979 and 1980 alone.

At the present time, there are approximately 80,000 subsidiary farms in operation throughout the country. Compared to 1978, the production of meat on these farms has increased by 16 percent, milk -- by 40, eggs -- by 10, potatoes -- by 24 and fruit and berries -- by 14 percent.

The USSR Minlesbumprom is addressing itself to these problems in a purposeful manner; here, one out of every two enterprises of the branch has a subsidiary farm or fattening station. Within the ministry, specific measures have been defined for the accelerated development of the subsidiary farms and more than 15 million rubles worth of credit have been allocated for the creation of new ones.

The ministry is thus solving a serious task -- that of further improving the productivity of the livestock. At the present time, non-pedigree and low productivity livestock predominate on the farms of these subsidiary facilities. The present task is as follows: during the next 2-3 years, to raise the productivity of the herd, to achieve an average milk yield of up to 3,000 kilograms by 1985 and in

those areas where such yields have already been achieved -- up to 4,000 kilograms. The weight increases for hogs undergoing fattening regimes will be raised to 400-500 grams daily.

This will enable the branch's subsidiary farms to achieve an annual increase in meat production of no less than 9 percent and in milk production -- 8.5 percent. At the present time, a subsidiary farm at the Tyumen' Timber Industry Combine is already producing 60 kilograms of meat, 70 kilograms of milk and more than 300 eggs annually per individual worker. At the Krestetsy Lumber Industry Farm in Novgorodskaya Oblast, an average of 120 kilograms of meat is being obtained per worker. Certainly, this includes the decentralized procurements. Two figures are offered for comparison: 80 and 33 tons. The first figure -- the amount of meat obtained through fattening at a subsidiary farm and the second -- state funds

Active work aimed at developing the subsidiary farms is being carried out by USSR Minneftekprom [Ministry of the Petroleum Industry], USSR Minugleprom [Ministry of the Coal Industry, MPS [Ministry of Railroads] and the RSFSR Ministry of the Construction Materials Industry.

A great deal has been accomplished in connection with the creation of subsidiary farms and the utilization of available resources for increasing the production of agricultural products in the Ukrainian, Uzbek and Kazakh Union Republics, in Altayskiy Kray and in Kemerovskaya, Permskaya and Arkhangel'skaya Oblasts.

In Kemerovskaya Oblast, for example, 45 subsidiary farms were organized in 1979 against a plan calling for only 15. Compared to 1978, three times more young pigs and 1.5 times more young poultry stock were sold to these farms.

Such results were achieved owing to active work on the part of the professional trade union and economic organizations in Kemerovskaya Oblast. The oblast council and the professional trade union committees participated directly in the development, by the Kemerovskaya Oblast CPSU Committee and the Oblast Executive Committee, of a plan for the construction of hog fattening stations, cow barns, rabbit farms, sheep farms, apiaries and hothouses and for supplying the subsidiary farms with young hog and poultry stock and seed for vegetables, root crops and grain crops. The oblast's professional trade union committees, jointly with the economic organs, developed additional measures for creating subsidiary farms at those enterprises where the plans made no provision for them.

Commissions were created in the oblast's cities and rayon centers for the purpose of procuring the required land areas. In addition to specialists from land management organs, these commissions also included representatives of the professional trade union committees and the administrations of interested enterprises. As a result of the work carried out in 1979 and 1980, approximately 11,000 hectares were allocated from the state land reserves and unused lands for use by enterprises and organizations (in 1978, no land was allocated for this purpose).

As a rule, large enterprises employ internal sources of financing for the creation and expansion of subsidiary farms. And the agricultural departments here, naturally, are multi-branch in nature, with animal husbandry, poultry production and vegetable growing all developing in a successful manner. Thus small enterprises must select

initially the best trends for the development of their agricultural departments. As a rule, this includes the construction of hothouses and 1-2 farms for the livestock, since opportunities exist at each plant or combine for heating the hothouses -- exhaust heat and for fattening the animals -- food remnants from dining halls.

Food remnants and "exhaust" heat -- these constitute reserves for the organization of subsidiary farms at enterprises. And if a plant is incapable of developing such a truly laborious specialty as animal husbandry, then it bears mentioning that the hothouse and hotbed specialties do not require a great amount of land nor tremendous expenditures.

But the development of subsidiary farms is still proceeding rather slowly, since the ministries, local soviets and professional trade union organs do not always provide support for the enterprises and institutes. Thus it is by no means an accident that within the system of such ministries as Minshivmash, Minpromsvyaz', Minradioprom [Ministry of the Radio Industry] and Minneftegazstroy, there are only several subsidiary farms per branch.

As yet, many ministries have still not introduced standard tables of organization or official normatives for the subsidiary farms of enterprises. This leads to a situation wherein requisitions for the required logistical resources, for use on the subsidiary farms, are submitted to the planning organs in an untimely and unskilled manner and the selection of personnel at the sites, especially specialists, is complicated.

In a number of areas, the interest of industrial enterprises in developing subsidiary farms is abating, since the illegal practice of industrial enterprises including the output of the subsidiary farms as state deliveries or reducing the market funds by the amount of agricultural output obtained from these farms is continuing.

Quite often we encounter incidents wherein the officials refuse to allocate land for the organization of agricultural departments and the procedure itself for allocating land requires extensive coordination at the appropriate levels. Many subsidiary farms of enterprises are experiencing considerable difficulties in obtaining machines, equipment and young livestock and poultry stock. They lack special plans for their livestock facilities, which would provide for gradual expansion by stages. A critical need exists for equipment for processing food remnants and not the type used on giant-farms, but rather more compact and cheaper items of equipment. Solutions must also be found for those problems concerned with supplying those subsidiary farms of enterprises engaged in animal husbandry operations with the required preparations and medicines.

In this regard, it is believed that the following entry should be added to Section IV, at that point where the principal tasks for the development of machine building for animal husbandry and feed production are outlined: "Organize the production of automated shops and a complex of machines and equipment for them, for the processing of food remnants at subsidiary farms of enterprises. We are of the opinion that two thoughts expressed in Section V should be defined more specifically. At that point where mention is made of the need for expanding the hothouse economy, emphasis should ideally be placed upon the dominating role played in its organization and development by enterprises having exhaust heat resources. In addition, the need for expanding fishing farms on the water discharged from GRES's should be pointed out.

7026
CSO: 1824

AGRO-ECONOMICS AND ORGANIZATION

LACK OF COORDINATION IN ADMINISTRATION SCORED

Moscow SEL'SKAYA ZHIZN' in Russian 7 Feb 81 p 2

[Article by Pritobol'nyy Raykom First Secretary N. Bagretsov: "Rayon Link"]

[Text] The draft "Basic Directions" state: "Continue improving agricultural management" and "Ensure effective leadership of a unified food complex".... We propose adding the words: "...beginning with the rayon management link" to this provision. Such specification would seem to be of considerable importance, because the fate of the state plans for increasing the production and procurement of agricultural output is to a large extent decided precisely in the rayons.

There are 18 farms in Pritobol'nyy Rayon. The 13 kolkhozes are subordinate to the rayispolkom agriculture administration. The other farms, the sovkhozes, are led by the oblast "Skotoprom" and "Ovtseprom" trusts and the "Sady Zaural'ya" association. Other oblast zones have sovkhozes of the "Svinoprom" and "Ptitseprom."

Thus, the farms of many of our rayons are subordinate to six organizations, five of which are in the oblast center. Under such conditions, can agricultural production be managed efficiently? Many years of experience prove they cannot. The existence of sovkhozes organized as trusts disrupts the unified system of leadership of the rural economy, generates a departmental approach to solving many problems, and injects confusion into kolkhoz and sovkhoz material-technical supply.

For example, those on specialized farms are anxious basically about just one or two types of output, wool, let's say, but are little interested in, for example, milk. As a result, procurements of some types of output increase appreciably for a rayon, while capital investments are directed into other branches on trust farms.

And how very much effort must be made to compose a plan on a rayon scale! One trust decreases production of some type of output, and another increases it. And the rayispolkom, its agriculture administrations and the rayon planning commission must, in fighting for state interests, so coordinate our overall efforts as to ensure the greatest output while taking local conditions into account.

Organizational fragmentation has led to confusion in material-technical supply. On the specialized sovkhozes, for example, tractors and combines are received on the basis of general trust schedules of allocations, but agricultural machinery and technical service equipment are received on the basis of a rayon agriculture administration schedule of allocations and spare parts, coal, fuel and lubricants -- on the basis of

a State Sel'khoztekhnika Committee schedule of allocations, while the rayon Sel'khozkhimiya Association [agricultural chemical service] is entrusted with supplying mineral fertilizers.

All these organizations are only barely interlinked. Their actions are therefore not coordinated. For example, tractors arrive but there are no plows or carts for them. On "Davydovskiy" sovkhoz, the soil is very heavy, with a great deal of solonets. Here, if anywhere, we need "Kirovets" [tractors], but few are received. There is one such tractor for every 1,380 ha of plowed field. And the reverse: the "Ovtseprom" trust sends more heavy tractors to "Alabugskiy" sovkhoz, which has primarily light soils. At the same time, this farm needs equipment to combat erosion, which is instead going to the rayon agriculture administration, which is trying to distribute this machinery and tools among its "own" farms.

It is even more complex to organize competition, to work out and implement moral and material incentives measures. We recall an instance in which the rayispolkom declared a contest for best equipment storage and maintenance. The agriculture administration planned to allocate the winner an extra truck. "Alabugskiy" sovkhoz won the right to it; it receives equipment from "Ovtseprom" trust. The rayon agriculture administration did not want to give it its "prize." The sovkhoz director then was justifiably critical at a party raykom plenum. Administration workers agreed to allocate the truck, but then the oblast agriculture administration interfered, and we had a paper merry-go-round.

In our opinion, the trust apparatus must be made departments of the oblast agriculture administration. Corresponding subdivisions should be created in the rayon agriculture administrations. It is a paradox. We have nearly 100,000 sheep, but there are no sheep-raising specialists in the rayon management link.

Our rayon has quite a few other enterprises and organizations operating in agriculture which are also isolated and do not comprise a single entity within the agricultural production management framework. I will list several of them: the State Sel'khoztekhnika Committee association, sectors of the "Meliovodstroy," "Raysel'khozenergo" and "Sel'khozmontazhkomplekt," the mixed-feed plant, and the construction-installation administration of the "Kurgansel'khozstroyob"yedineniye."

We have successfully resolved certain tasks ourselves by using the opportunities provided by interfarm cooperation. In particular, we created a rayon interfarm mechanization and electrification association. It began doing those jobs refused by enterprises of the State Sel'khoztekhnika Committee or taken on unwillingly by them because such orders were unprofitable. Among those jobs are technical service on the vehicle-tractor fleet and power equipment and machinery installed on the farms, as well as maintenance on combines, agricultural tools and implements. The "Raysel'khozenergo" became part of an interfarm association as a cost-accounting subdivision.

The association has recently built three heated bays and four storage sheds to meet its own needs; it has provided its production zone with amenities and paved 1,600 m^2 to store grain combines and other machinery. A saw frame is in operation, a wood processing shop is being built, and construction of an unloading yard is being finished. A combine frame has been installed; it will be good for 200 conventional repairs. A garage has been put into operation. Documentation has been prepared for renovation of the Yalymskiy zonal workshop. Forty-seven apartments have been built.

What has all this done? The readiness of the vehicle-tractor fleet has increased 17-28 percent and that of grain combines -- 42 percent. Maintenance quality has improved. Association leaders, engineers and technicians are concerned not with work volume in monetary terms, but in carrying out farm orders from farms participating in the cooperation.

And one other thing. As we know, tractors and combines are broken down to the last bolt in specialized State Sel'khoztekhnika Committee workshops. Even those subassemblies not in need of repair are replaced. Such mismanagement is not permitted in our Pritobol'nyy association. And the economic results are that maintenance on each combine in the cooperative's workshops costs 524 rubles, while it costs more than 800 rubles at the State Sel'khoztekhnika Committee's Koltashovskiy workshop.

It is also appropriate to use on an interfarm basis specialized transport which is used several months a year. An experiment has verified that 3-4 motorized cranes would meet the needs of all rayon farms. The same could be said about excavators, cattle trucks, gasoline trucks, lumber trucks, and so on.

It is the goal of interfarm cooperation in the area of technical servicing to subordinate the interests of all organizations and enterprises associated with agriculture to the needs of the kolkhozes and sovkhozes. Unfortunately, not all problems of this kind can be solved by local agencies. We need special steps at the state level to enable us to overcome red tape and fragmentation in the agricultural production management system. That is the sense I should like to add to the "Basic Directions."

11052
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REGULATION HELD IMPORTANT IN PROCUREMENT PRICING

Minsk SEL'SKAYA GAZETA in Russian 10 Feb 81 p 2

[Article by N. Goryachko and G. Ignat'yeva, associates at the Belorussian Scientific Research Institute of Agricultural Economics and Organization, candidates of economic sciences: "Give All an Equal Opportunity"]

[Text] The document "Basic Directions" of economic and social development of the USSR for the 11th Five-Year Plan gives rural workers great and important tasks in supplying food and agricultural raw materials to the country. An enormous amount of capital is being invested in this. The system of incentive to give agricultural workers a better attitude toward labor is also being refined. At the same time, it is common knowledge that an increase in production in agriculture is much more difficult than in other economic sectors because of the importance of natural factors. It is also common knowledge that land is the principal means of production in agriculture and its potential depends largely on natural fertility.

Agriculture in our republic is developing along the path of intensification. This has, of course, affected results. The average grain yield has almost doubled since 1965. The size of the livestock herd has increased and the production of gross output is more than doubled. But quantitative indicators are one side of the problem; qualitative indicators, which means indicators of economic efficiency, are another side, and a very important one. Unfortunately, alongside the growth in quantitative indicators at many farms there is a decline in the profitability of production, indebtedness on State Bank loans and credit is rising sharply, and the number of unprofitable sovkhozes and kolkhozes is growing. Just as was true 20 years ago, the republic today has regions which receive 12-15 quintals of grain and 120-140 quintals of potatoes per hectare, as well as regions where these indicators are 2-2.5 times higher. And yield differences among the farms are even greater.

What are the causes of these significant differences in crop farming and, as a result, in the production of animal husbandry output?

Studies show that they are concealed chiefly in the great diversity of production conditions and factors. The quality of land according to natural fertility is even more striking: from 24 to 48 points by regions and from 14 to 60 points by farms. The ratio of capital resources available per

100 hectares of agricultural land ranges from 60,000 to 150,000 rubles by regions and from 50,000 to 220,000 rubles by farms. There is also a large difference in the number of hectares of land work per able-bodied worker. These are the facts.

There are also differences in such factors of production as the distance to markets and supply depots, availability of hard-surface roads, dimensions and contours of fields, and availability of material resources. All these things taken together explain the large differences in production of output. The level of management and worker qualifications is also a factor. But these are subjective factors, and not determining.

In short, the differences mentioned above are explainable and well-known. But the main thing that we would like to point out is that expenditures per unit of output on the poorest land are always much higher than on the best land. According to our figures, and this has been studied for a long time, the prime cost of one quintal of grain on land with a rating of 15-22 points is 11-12 rubles, while on land with an assessment of 48-50 points it is just 6-7 rubles. This pattern appears in potato raising, flax growing, and feed production. Naturally, higher expenditures for feed are automatically passed on to the prime cost of animal husbandry output.

Despite significant differences in expenditures per unit of output, all the kolkhozes and sovkhozes of the republics sell their output at uniform state purchase prices. As a result, some farms (on the worst land) barely cover production costs while others (on the best land) receive high incomes, pay their employees well, and solve social problems successfully. But facts are facts. In recent years the number of unprofitable and low-profitability farms in the republic has increased sharply. Of course, unfavorable weather conditions in the last two years have had an effect. But nonetheless, the question arises: what kind of farms are becoming unprofitable? To clarify this matter we selected, out of all the farms in the republic, those which were unprofitable or had profitability levels below five percent for three of the last five years. We found 783 such kolkhozes and sovkhozes. Next we learned that 604 of the farms (more than 77 percent of the total number) had land evaluations below 35 points, that is, lower than the average for the republic. And if the land is worse, it means the material-technical base of the farms is also weaker and, generally, they have less labor. Therefore, it is much more difficult for these farms to operate and increases in output at them are much more expensive. State purchase prices do not cover expenditures, the farms get into difficult financial situations, and are unable to form the necessary material incentive and public consumption funds and carry on construction. It would seem that an appropriate level of state purchase prices should be planned for the farms which have high production costs, but unfortunately, planning and agricultural agencies at present are not solving this critical problem. At the same time, indebtedness on State Bank credits and loans is periodically written off, but usually at a point where it is already hard to rescue the financial situation of the farms: they have no capital for expanded reproduction, either before or after the debts are written off.

Of course, taking regulatory steps is a very difficult matter. This means forming groups based on objective factors and production conditions, and it

means calculating a differentiated price or other methods of regulation for each group of farms and adjusting the state purchase plan. These are complex matters. Nonetheless, in our opinion, they can no longer be postponed. Half-measures do not produce the necessary effect. Here is confirmation of that. As one regulatory measure, state purchase prices for milk and potatoes for all kolkhozes and sovkhozes of the republic were raised as of 1 January 1979. What was the result? Of course, production efficiency rose for the sector as a whole. As for the situation at the group of farms occupying the worst land, analysis revealed the following. In the group of kolkhozes and sovkhozes with land quality up to 23 points increase in state purchase prices brought a rise in the amount of profit per 100 hectares of agricultural land of just 40 rubles, while in the group of farms with the best land (53 points and higher) the increase was 1,640 rubles, which is 40 times higher. Thus, the general increase in state purchase prices only deepens the differentiation in the level of economic development of the farms. That is why the point in the draft "Basic Directions" which reads, "Carry out a system of measures to strengthen cost accounting (khozraschet), reduce costs, raise the profitability of agricultural production, and improve the financial-economic condition of the farms" should, in our opinion, be supplemented with the following words: "Commission the state planning committees of the USSR and Union republics, the ministries of agriculture, and state committees for prices to develop and apply in practice a system of measures to regulate the economic development of each kolkhoz and sovkhoz."

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AGRO-ECONOMICS AND ORGANIZATION

REASONS FOR REDUCED PROFITABILITY IN AGRICULTURE DISCUSSED

Moscow SEL'SKAYA ZHIZN' in Russian 13 Feb 81 p 2

[Article by F. Shakhmamedov, candidate of agricultural sciences, Moscow: "Equal Conditions for All Branches"]

[Text] During the past few years, the production of agricultural products has increased noticeably. However, the economic indicators for many kolkhozes and sovkhozes and for entire branches have deteriorated. In particular, their profitability has decreased. And this has occurred notwithstanding the repeated increases in the state procurement prices for certain agricultural products and the deferments and repayments for large amounts of long-term credit.

At the same time, the profit for almost all of the organizations which service agriculture or are directly associated with it has been increasing from year to year. For example, it increased considerably for the ministries of procurements, food, meat and dairy and light industry, USSR Minsel'mash, USSR Glavbioprom and other departments included in the country's agroindustrial complex.

Certainly, such different results are caused by various factors. But beyond any doubt, an important role is played here by imperfections in the production contacts and economic relationships between agriculture and its allied branches. The continuation of such a trend is extremely undesirable. In this regard, it is believed that the wording in the draft Basic Directions concerning the need for improving the economic contacts between the agricultural, industrial and other enterprises and organizations should ideally be revised to read as follows: "To improve the production contacts and economic relationships between agriculture and other branches of the agroindustrial complex and in a manner so as to ensure equal conditions for the development of all of its branches and particularly agricultural production."

There was still one other proposal. The enterprises and shops of kolkhozes and sovkhozes for the primary processing, storage and treatment of agricultural crops represent an important element with regard to reducing losses in crops already grown. Unfortunately, they are still being referred to as auxiliary elements. This determines to a large degree their future development, since during planning they are usually viewed as "secondary" elements.

Thus, in Section V of the draft Basic Directions the entry concerning the development of subsidiary enterprises and departments of kolkhozes and sovkhozes

should ideally be formulated as follows: "To ensure the further and planned development, at kolkhozes and sovkhozes, of enterprises and departments for the processing and storage of agricultural products, as the primary base for agro-industrial integration."

During the course of further kolkhoz and sovkhoz development, their production contacts among themselves and with local industrial enterprises will become stronger and the practice of joint organization of various production operations will be expanded. To the degree that it is economically feasible, the agro-industrial associations will gradually take shape. In these associations, agriculture will be organically combined with the processing of its products.

In order to ensure the successful development of agroindustrial integration, it will be necessary to examine the organic interrelationships in their activities, as set forth in the plans for the APK [agroindustrial complex] branches both for the five-year plan and for the future. However, under the existing system for planning and control, this is not that simple to accomplish. Permit me to cite such an example.

The USSR Ministry of Agriculture addressed a request to USSR Minvodkhoz [Ministry of Land Reclamation and Resources] for permission to plan and construct new cotton sovkhozes on reclaimed lands, with the work being carried out taking into account the feasibility of creating agroindustrial formations of the sovkhoz-plant type or associations for the production and processing of raw cotton and the preparation of seed for cotton plants. Such an enterprise is in operation in Uychinskiy Rayon of Namanganskaya Oblast in the Uzbek SSR and also in some other regions of the country. But the Ministry of Land Reclamation and Water Resources for the USSR, referring to the branch principle for planning capital investments, refused to implement this fine idea.

It is believed that in the second paragraph of Section V of the draft Basic Directions, following the words "In the interest of successful implementation of the food program," the following entry should be inserted: "To improve the system of planning and control for the agroindustrial complex," with the text following thereafter.

7026
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PRIVATE SUBSIDIARY FARMS FOR SATISFYING POPULATION'S FOOD REQUIREMENTS

Moscow TRUD in Russian 1 Feb 81 p 1

[Article: "Private Farm of General Interest"]

[Text] A group of brigade leaders from cotton growing farms in Namanganskaya Oblast recently addressed an appeal to all kolkhoz members and sovkhoz workers throughout the republic, asking them to intensify household animal husbandry. Among the authors of this appeal -- Hero of Socialist Labor, deputy to the USSR Supreme Soviet and brigade leader at the Dustlik Sovkhoz A. Sharipov, laureate of the USSR State Prize and brigade leader at the Gigant Kolkhoz in Zadar'inskiy Rayon A. Turgunov, member of the Central Committee of the Communist Party of Uzbekistan and brigade leader at the Kolkhoz imeni Kalinin in Turakurganskiy Rayon S. Nazarov and others.

Their initiative was supported. In all of the leading brigades throughout the oblast, measures were developed for accelerating the development of animal husbandry on the private farms. For example, there are presently 30 cows in 60 farmyards of a cotton brigade at the Gigant Kolkhoz. The task has been assigned of increasing their number to 90 in the near future. The number of sheep and poultry must increase sharply. The specialists have estimated that each brigade, using its own private farms, is capable of supplying the state with surplus products as follows: no less than 10 tons of meat, approximately 100 tons of milk and up to 70,000 eggs annually.

Among the problems upon which the standard of living of our Soviet people is dependent, priority importance is attached to improving the supply of food goods. The principal source for satisfying the population's requirements for products is social production. At the same time, the most complete utilization of the potential of private subsidiary farms for producing food products constitutes an important additional reserve for augmenting the food resources. The development of the private subsidiary farms and the attention being given to them by economists and social organizations are producing obvious results: these factors are serving to attract an additional work force -- pensioners, housewives and juveniles -- into the production of agricultural products.

In a number of oblasts in the Russian Federation and the Ukrainian SSR, the raising of livestock and poultry by the population, based upon contracts with farms, has been organized. This system is being employed at the Sovkhoz imeni Dzerzhinskiy in

Donetskaya Oblast, at the Kolkhoz imeni Kutuzov in Odesskaya Oblast and on many farms in Bogucharskiy Rayon in Voronezhskaya Oblast. The farms supply the farmyards with feed and organize veterinary services for them.

However, in the recently published decree of the CC CPSU and the USSR Council of Ministers entitled "Additional Measures for Increasing the Production of Agricultural Products On the Private Subsidiary Farms of Citizens," it is mentioned that by no means is full use being made of the opportunities available for increasing the production of meat and milk. In some oblasts, krays and republics, proper importance is not being attached to the role being played by the private subsidiary farms -- reductions in the production of agricultural products are being tolerated in the Tatarskaya ASSR, in Gor'kovskaya and Novgorodskaya Oblasts, in Krasnodarskiy Kray and in other regions. The requirements of kolkhoz members and manual and office workers for young cattle and poultry stock are still not being satisfied fully and the local economic and professional trade union organs are displaying very little concern for ensuring that haying and pasture land is made available for use by the citizens. The work of procuring surplus agricultural products from the population is being carried out in a weak manner. The professional trade unions are not furnishing adequate assistance in ensuring that each rural family has a garden and is able to raise livestock and poultry in its farmyard.

The opportunities for producing and procuring products from the private subsidiary plots of the population were taken into account in the plan for 1981. This obligates the economic leaders and the committees of the Professional Trade Union for Agricultural Workers, in the industrial financial plans, collective contracts and agreements on social problems and the protection of labor, to call for the measures required for further developing the private subsidiary farms and making extensive use of the experience accumulated in the raising of livestock and poultry based upon contracts.

For carrying out the mentioned work, it will be necessary, within the committees of the Professional Trade Union for Agricultural Workers at kolkhozes, sovkhozes and other enterprises and organizations, to create public commissions for assisting in the development of the private subsidiary farms. Such commissions should ideally be attached to the rayon, oblast, kray, republic and central committees of the professional trade union.

The CC CPSU and the USSR Council of Ministers consider it necessary to implement additional measures aimed at improving the conditions under which the private subsidiary farms are managed.

The decree authorizes sovkhozes and other agricultural enterprises and it recommends that kolkhozes conclude contracts, on a strictly voluntary basis, with kolkhoz members, manual and office workers and other citizens residing on their territory and who participate conscientiously in the work of the collective, and also with pensioners, for the raising and procurement of livestock and poultry and for the procurement of surplus milk. It has been established that the products procured in accordance with the contracts are sold by these farms to the state and included in the production volume and towards fulfillment of the state plan for procurements, with the established bonuses being paid for the quantity and quality indicators. The livestock maintained on the private subsidiary farms of citizens, within the norms

established in the Kolkhoz Regulations and in existing legislation, will be used at the discretion of the owner, that is, it could be retained to satisfy the needs of the family or it could be sold through consumer cooperation or in the market.

The decree of the CC CPSU and the USSR Council of Ministers devoted a great amount of attention to the further development of horticulture and gardening. In particular and commencing in 1981, USSR Gosbank has authorized credit to be extended to manual and office workers and to the members of horticultural associations for the purpose of procuring and building greenhouses in order to improve their plots.

The professional trade union organizations must carry out organizational and explanatory work among the population and it must acquaint the kolkhoz members and workers and employees with the measures called for in the decree of the CC CPSU and USSR Council of Ministers, with regard to further increasing the production of agricultural products on the private subsidiary farms.

A private subsidiary farm is an ideal form for combining public and private interests. The correct attitude towards the peasant farmyards is helping to solve a most important task -- satisfying more completely the population's requirements for food products.

7026
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GRAIN STORAGE, PROCESSING FACILITIES ANALYZED

Moscow EKONOMICHESKAYA GAZETA in Russian No 9, Feb 81 p 23

[Review of elevator construction operations, prepared by workers attached to USSR Ministry of Procurements: "For the Grain -- High Quality Storage Facilities"]

[Text] The high goals for grain production planned for the Eleventh Five-Year Plan require increases in the capacities of the grain receiving and processing enterprises. In a report delivered before the 26th party congress, Comrade L.I. Brezhnev emphasized the need for further strengthening the base for the storage and processing of agricultural products.

During the preceeding 15 years, the capacity of the grain storage facilities almost doubled. Moreover, priority was given to erecting elevators that were equipped with modern means for the mechanization and automation of production processes and with efficient drying, grain cleaning and weighing equipment. It is sufficient to state that during this period the elevator capacities increased by a factor of five, with 476 new elevators being placed in operation. Their proportion with regard to the overall capacity of the grain storage facilities was raised by a factor of almost three. In addition to the construction of elevators, the erection of enterprises of the grain processing industry was carried out at an intensive pace.

Analysis of the Results

During the Tenth Five-Year Plan, a new and important step was taken towards further increasing the capacities of the grain storage facilities and raising the capabilities of the grain processing industry. The level achieved during the Ninth Five-Year Plan for placing elevator capacities in operation was exceeded by more than 2 million tons. A greater number of granaries having a high level of mechanization were built than originally planned and the five-year task for building grain drying capabilities was over-fulfilled.

It bears mentioning that the collectives of builders attached to contractual construction ministries performed somewhat better than they did during the Ninth Five-Year Plan. Subunits of USSR Mintyazhstroy [Ministry of Construction of Heavy Industry Establishments] and USSR Minenergo [Ministry of Power and Electrification], for example, carried out completely the tasks assigned to them. The builders of USSR Minpromstroy [Ministry of Industrial Construction] coped successfully with the plans for erecting elevators and mills. Some subunits of the principal and main

contractor -- USSR Minsel'stroy [Ministry of Rural Construction] -- placed more installations in operation than they did during the Ninth Five-Year Plan. However, in like manner as the builders of USSR Minstroy [Ministry of Construction], they still lacked persistence and skill in organizing the work of completing their own construction programs.

During the erection of elevators, mills and mixed feed plants, proper emphasis was still not placed upon the need for improving the quality of construction operations. Large-scale shortcomings, mistakes and miscalculations are being tolerated during the planning stage for installations and also during the preparation of planning-estimates documentation. The equipment being delivered to the projects by enterprises of Minlegpishchemash [Ministry of Machine Building for Light and Food Industry and Household Appliances] does not always meet the requirements for quality. Quite often the structures and items being produced by USSR Minsel'stroy do not meet the state standards or technical conditions.

Following the Example Set By Leading Elements

Among the construction subunits of USSR Minsel'stroy, there are many collectives whose selfless labor is quite properly deserving of both recognition and profound respect. The builders of the Ukrelevatorstroy Trust, which is directed by V. Sobolev, successfully coped with their five-year task for placing grain procurement and processing installations in operation. They exceeded their planned task for placing elevator capacities in operation at Belovoda Station, they fulfilled by 170 percent their plan for placing elevator capacities in operation in the city of Belaya Tserkov' and they erected greater capacities at Mironovka Station than originally called for. They introduced a large mill into operations in the city of Kiev 6 months ahead of schedule. Other installations were also placed in operation on a timely basis and in a high quality manner.

Under the direction of Manager V. Dormostuk, fine work was performed by the builders of the Severkazelevatorstroy Trust. Last year they placed in operation more than 300,000 tons of elevator capacity. During the construction of an elevator at Belaya Kalitva Station in Rostovskaya Oblast, 27,000 tons of capacity over and above the task were placed in operation. During the construction of the Don-25 Elevator, the plan for placing capacities in operation was exceeded. Large elevators were introduced into operations at Ol'ginskaya Station, in the city of Slavyansk-na-Kubani and at Tarasovka Station.

The collectives of the Spetselevatormel'montazh and Kazelevatormel'montazh trusts (managers L. Khanin and A. Didenko) performed a great amount of work in connection with the installation of complicated technological equipment. They installed equipment rapidly and in a high quality manner during the construction of elevators representing an overall capacity of approximately 1.5 million tons and a number of large mills and mixed feed plants.

Many other positive examples could be cited reflecting the skilful organization of construction-installation work and the genuine labor selflessness of the builders. However, the experience of leading production workers and innovators is only slowly being disseminated and introduced into operations in the construction subunits of contractual construction ministries. Meanwhile, this represents huge reserves for accelerating the construction schedules and improving the quality of the projects under construction.

The Tenth Five-Year Plan can quite properly be referred to as a five-year plan for innovation and technical progress in the development of those branches associated with the procurement, processing and storage of grain. Special attention was concentrated on elevator construction. Variants for different methods for erecting installations were studied and worked out here and experimental construction was carried out on an extensive scale.

An important and more progressive trend in the construction of elevators is that of erecting metal silos for the storage of grain, produced using rolled stock and the wrapping method and also utilizing serially produced loading and unloading equipment. The computations and conclusions of specialists attached to USSR Gosstroy have confirmed that steel expenditures per 1,000 tons of metal capacity do not exceed the steel expenditures for reinforced concrete capacity. At the same time, the capital investment requirements for the erection of metal silos are 30-40 percent lower than those for reinforced concrete silos.

It would seem that such economically effective solutions of tremendous national economic importance would draw the attention of the builders and particularly that of the main contractor -- USSR Minsel'stroy -- which carried out the principal volume of work in the erection of procurement enterprises. However, this has not happened. It is obvious that no improvement is being realized owing to the forces of inertia and a lack of desire with regard to improving the existing technology.

In the city of Kuybyshev, at Milling Plant No. 1, an experimental elevator having a capacity of 30,000 tons was introduced into operations. It was built using a monolithic version and lightweight aggregate concrete. Framework reinforcement was employed for the very first time in monolithic elevator construction. It was built by the Kuybyshev Trust of USSR Minpromstroy [Ministry of Industrial Construction], using a plan of the Kuybyshev Promzernoproyekt Institute of USSR Minzag [Ministry of Procurement]. It bears mentioning that this plan can be used for the construction of granaries at kolkhozes and sovkhozes. The multi-sectional nature of its silos makes it possible to store forage grain and seed for various grain and technical crops and grasses in the same storage facility.

Elevators of Tomorrow

A large construction program must be carried out during this current five-year plan. The plans call for the placing in operation of grain elevators providing an overall capacity of 20 million tons. A large volume of work must be carried out during this current year. The construction areas for the procurement installations to be introduced into operations in 1981 are shown on the chart which accompanies this article. They are being erected in practically all of the union republics. But the greatest number of them will be located in the main zones for the production of commodity grain -- the grain regions of the Russian Federation, the Ukraine and Kazakhstan.

The capabilities of the grain drying economy will be increased during the Eleventh Five-Year Plan by 35,000 tons hourly. They will be increased by roughly the same amount during the following five-year period. New, economical and highly productive dryers will be used extensively at the grain receiving enterprises. The plans call for further and accelerated development of the grain drying capabilities in the regions of mass production of sunflowers, corn and rice.

New milling plants which employ self-contained and highly productive equipment will be erected in almost all of the union republics, mainly in large cities and in the country's industrial centers. The placing in operation of these mills and the rapid mastering of their capabilities, together with existing enterprises, are making it possible to practically double the production and consumption of high quality flour.

1. Startup of elevators, mixed-feed plants and milling enterprises in 1981
2. Elevators
3. Mixed-feed plants
4. Milling enterprises

Taking into account further increases in the numbers of livestock and poultry, in milk production and in the productivity of public animal husbandry, a special purpose program was prepared for developing the mixed feed industry during the Eleventh Five-Year Plan and for the period up to 1990. The current five-year plan calls for the construction and placing in operation of 90 mixed feed plants. This will be an important factor with regard to the efficient use of grain that is intended for use as livestock and poultry feed, since the feeding of mixed feed to them, compared to grain in pure form, makes it possible to increase the production of animal husbandry products by 20-30 percent.

The implementation of a broad program in the sphere of grain procurements, storage and processing and an increase in the production and improvements in the quality of the grain products and mixed feeds are viewed as important contributions towards the development of the agro-industrial complex. In addition, they will promote improvements in the country's food supply.

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REQUIREMENT FOR INCREASED PRODUCTION OF GRAIN IN RSFSR STRESSED

Moscow ZERNOVOYE KHOZYAYSTVO in Russian No 1, Jan 81 pp 3-7

[Article by L.N. Florent'yev, Minister of Agriculture for the RSFSR: "Further Increase in the Production of Grain -- The Main Concern of Kolkhozes, Sovkhozes and Agricultural Organs"]

[Text] In carrying out the decisions handed down during the 25th CPSU Congress and the plenums of the Central Committee and the instructions by the General Secretary of the CC CPSU and Chairman of the Presidium of the USSR Supreme Soviet Comrade L.I. Brezhnev, the kolkhozes, sovkhozes and agricultural organs of the Russian Federation, under the leadership of the party organizations, are carrying out systematic work aimed at increasing the production of grain.

During the 1976-1980 period, the republic's grain economy took another forward step: the average annual gross yield of grain reached 113.4 million tons, or 10.5 million more tons than the annual average for the Ninth Five-Year Plan and 36.8 million more tons than the figure for the Seventh Five-Year Plan.

Many kolkhozes and sovkhozes, having concentrated their efforts on raising the culture of farming and the cropping power of the grain crops, based upon maximum intensification, and making skilful use of the growing logistical base, countered the unfavorable weather conditions with a fine level of organizational ability, high expertise and selfless labor on the part of the machine operators and all farmers. As a result, they achieved considerable increases in the production and sale of grain to the state. Increases were realized in the grain yields and procurements by the grain growers in Krasnodarskiy and Stavropol'skiy Krays, Orenburgskaya, Volgogradskaya, Kuybyshevskaya, Belgorodskaya, Kurganskaya, Omskaya, Tyumenskaya, Amurskaya and Moscow Oblasts, Bashkirskaya ASSR, Kalmytskaya ASSR, Kabardino-Balkarskaya ASSR, Dagestanskaya ASSR, Severo-Osetinskaya ASSR, Checheno-Ingushskaya ASSR and in Primorskiy and Khabarovskiy Krays.

At the same time, many rayons and farms in the central chernozem oblasts, the Volga region and Siberia remained under a great obligation to the state during the current five-year plan.

The increase in grain production in the Russian Federation was achieved mainly owing to improved cropping power and a strengthened logistical base. Compared to

the Seventh Five-Year Plan when the RSFSR kolkhozes and sovkhozes obtained approximately 10 quintals of grain per hectare, during the past five-year plan -- approximately 15 quintals per hectare.

Approximately 65 billion rubles worth of capital investments were expended during the Tenth Five-Year Plan for developing the public economy of the republic's kolkhozes and sovkhozes. This figure was almost four times greater than that for the Seventh Five-Year Plan. RSFSR agriculture was supplied with 187 million tons of mineral fertilizer during the 1976-1980 period, compared to only 32 million tons in 1961-1965. By the end of last year, the fixed productive capital of the kolkhozes and sovkhozes had reached 106 billion rubles, compared to only 26 billion rubles at the beginning of 1966.

Recently, in addition to realizing an increase in grain production, some improvements have also been achieved in the structure of grain production. Thus, compared to the 1966-1970 period when grain forage constituted 33.6 percent of the overall yield, during the 1976-1980 period -- 44.4 percent.

However, despite the fact that some successes were achieved, the increases in grain yields, both in the RSFSR on the whole and in a number of oblasts, krays and autonomous republics, turned out to be insufficient. The principal cause derives from the fact that in many rayons and at many kolkhozes and sovkhozes a proper level of intensification was not achieved, the grain crop yields were low and they were dependent to an excessive degree upon the weather conditions and losses of crops already grown were often tolerated. On many farms the grain yield per hectare of arable land was low and there were great differences in the cropping power.

Beyond any doubt, the extremely unfavorable weather conditions experienced during 3 years of the past five-year plan exerted an adverse effect on the grain production levels and cropping power in some rayons. But the principal factor should not be overlooked -- weak utilization of the available potential by many kolkhozes and sovkhozes and failure to observe the technological requirements. The raising of backward farms, rayons, oblasts, krays and autonomous republics to the level of average and leading ones represents a great reserve for increasing the grain yields. In his speech delivered before the October (1980) Plenum of the CC CPSU, Comrade L.I. Brezhnev drew our attention to precisely this aspect of the problem.

During the Eleventh Five-Year Plan, in conformity with the CC CPSU plan for the 26th Congress of the Communist Party of the Soviet Union entitled "Principal Trends for the Economic and Social Development of the USSR During the 1981-1985 Period and for the Period Up To 1990," the average annual production of grain must reach 134-136 million tons. But this is viewed as being a minimal task. In order to fulfill the obligations to the state and satisfy fully the needs of developing animal husbandry and other intra-farm requirements of the kolkhozes and sovkhozes, and this is the only basis on which to proceed, the republic must achieve an average cropping power level of 20 quintals per hectare within a very short period of time.

During 1981, the kolkhozes and sovkhozes of the RSFSR plan to obtain 17 quintals per hectare. This task is both complicated and difficult and particularly so in view of the fact that the prevailing conditions are not easy and vary greatly. Whereas in the southern regions and in the Volga area we are pleased with the seedlings of the

winter crops, which were sown on a timely basis and in damp soil, in the nonchernozem zone many farms failed to fulfill their sowing plan and they carried out less early autumn plowing work than was the case last year. We are also disturbed regarding the quality of the seed, especially on farms in the northern and nonchernozem regions. Under these conditions, a maximum amount of attention must be given to further intensification of the grain economy, raising the cropping power of the grain crops based upon improvements in soil fertility and the culture of farming and making greater use of leading experience and the achievements of scientific institutes. Fine successes are being achieved by those kolkhozes, sovkhozes and rayons which are following a scientifically sound system of agricultural management in a strict and consistent manner.

In implementing the all-round program for raising the fertility of soils, special attention should be given to protecting them against wind and water erosion, particularly in view of the fact that more than one half of the republic's commodity grain production is concentrated in rayons which are subject to wind erosion.

It bears mentioning that less attention has been given recently to the carrying out of anti-erosion measures in Altayskiy and Krasnoyarskiy Krays, Novosibirskaya, Irkutskaya, Chitinskaya Oblasts and in the Buryatskaya and Tuvinskaya ASSR's. Nor is the campaign against wind erosion in the southern Urals and in the Volga region being carried out to the degree required. A great amount of soil protection work remains to be carried out by the agricultural organs in the north Caucasus.

The use of measures for combating the water erosion of soils on farms in the nonchernozem zone, the TsChO [Central Black Earth Region] and other regions must be expanded considerably.

The great role played by the use of chemical processes for raising soil fertility and increasing the production of grain is well known. In 1976-1980 and compared to the 1971-1975 period, mineral fertilizer applications in behalf of grain crops increased by 36 percent throughout the republic. According to the computations of specialists, this ensured an increase in yield of 7-8 million tons, or more than one half of the overall growth in grain production during the Tenth Five-Year Plan. However, the available mineral fertilizer resources precluded the possibility of increasing their applications substantially in behalf of the grain crops, particularly in the Volga region, the Urals and in Siberia.

The plans for the new five-year plan call for all or almost all of the increase in mineral fertilizer to be used in behalf of the grain and forage crops. By this means alone, it should be possible to increase the grain yield by a minimum of 10-11 million tons. Thus, extreme importance is being attached to increasing sharply the effective utilization of mineral fertilizers. First of all, the logistical base for the use of chemical processes had to be improved substantially and as rapidly as possible, so as to reduce fertilizer losses to a minimum; secondly, a more active campaign had to be launched aimed at raising the effectiveness of the mineral fertilizers considerably and increasing the applications of phosphorus-containing fertilizers into the drill rows during the sowing of the grain crops. During this current year, for example, the possibility exists of applying superphosphate to the spring grain crops during sowing operations to be carried out on no less than 35-37 million hectares. At the same time, a top dressing should be applied to all

of the winter grain crops. Rossel'khozkhimiya has been tasked with supplying the farms with the required fertilizers; thirdly, an expansion should take place in liming operations carried out on acid soils and the quality of such work should be improved, especially in the nonchernozem zone and in the Far East; fourthly, more attention must be given to organic fertilizer applications. Fine examples in the use of such fertilizer have been provided by the farms in Leningrad Oblast, which last year applied 18 tons of organic materials per hectare of arable land, and in the Karel'skaya and Komi ASSR's -- 12 tons each. In the central economic region, Moscow Oblast is setting the tone in this important work. Twelve tons of organic fertilizer are being applied here per hectare of arable land (in Orlovskaya Oblast -- 2.5 tons, in Tul'skaya -- 3.2 and in Ryazanskaya Oblast -- 3.1 tons).

Life is advancing the task of further increasing the production of grain on reclaimed lands, the area of which has reached 8.5 million hectares throughout the republic, including up to 4.8 million hectares of irrigated land. These lands are being employed to produce all of the rice, up to 25 percent of the grain corn, two thirds of the vegetables and approximately 20 percent of the hay and perennial grass fodder. It should be borne in mind, however, that the yields for crops grown on reclaimed lands are increasing slowly, including grain crops. In 1981, the republic's farms are planning to obtain no less than 4.6 million tons of grain from these lands, compared to an average of 3.8 million tons during 4 years of the Tenth Five-Year Plan.

In order to bring about radical improvements in the utilization of reclaimed lands, the kolkhozes and sovkhozes are improving the structure of the crops and planting here mainly those crops which furnish the highest returns. The state is allocating for this purpose an average of 10 quintals of mineral fertilizer per hectare. The local agricultural organs are obligated to ensure that it is used for this purpose. These lands must be assigned to permanent brigades and teams and more extensive use must be made of the experience of interenterprise cooperation, which has proved its worth in a number of rayons in Saratovskaya, Kuybyshevskaya and some other oblasts.

Improvements in the utilization of reclaimed lands are closely associated with the task for increasing grain production; first of all, because an increase in the yields of coarse and succulent feed obtained from such lands will make it possible to release non-irrigated lands for use in expanding the sowings of grain crops and, secondly, and this is very important, an increase in the proportion of coarse and succulent feed in the animal rations will make it possible to reduce grain consumption substantially. In other words, considerably more animal husbandry products will be obtained from the same amount of grain.

In the campaign to produce more grain, a tremendous role will be played by one very important factor -- selection and seed production. Nor is everything proceeding satisfactorily in this sector of operations.

Everyone is familiar with the eminent achievements of such Soviet plant breeders as P.P. Luk'yanenko, A.P. Shekhurdina, V.N. Mamontovaya, I.G. Kalinenko and others, who created wonderful grain crop varieties. However, life does not stand still, but rather it imposes newer and newer requirements which by no means are being satisfied fully. Quite often the new regionalized varieties differ very little from existing ones in terms of cropping power and other quality indicators. Despite the

fact that a considerable period of time has elapsed, no solution has yet been found for the problem of creating, for farms in Siberia, productive varieties of spring wheat having shorter growing seasons. Farms in the Volga and other regions are waiting for the plant breeders to provide them with highly productive grain crop varieties for cultivation under irrigation conditions.

And what has the experience accumulated in recent years in the nonchernozem zone revealed? Here, owing to an increase in the applications of nitrogen fertilizers, the growing seasons have lengthened, more and more frequently the grain is not ripening and it is lodging on a mass basis (the last applies not only to the nonchernozem zone but also to other regions of the republic).

Nor can we recognize as satisfactory the results obtained in the breeding of millet, buckwheat, peas and some other crops. Thus, our plant breeding institutes have their work cut out for them.

For their part, the agricultural organs are obligated to introduce the new and promising varieties into production operations on a more rapid basis. We will strive to disseminate on an extensive scale the positive experience accumulated by the agronomic service and the plant breeding institutes in Rostovskaya Oblast, which accumulate large quantities of seed before the new varieties are regionalized, thus making it possible to propagate the seed in the required volumes in just 2-3 years.

At the present time, use is not being made in all areas of the opportunities available for the rapid propagation of the more productive varieties. Compared to kolkhozes and sovkhozes in Volgogradskaya, Orenburgskaya and Voronezhskaya Oblasts and the Bashkirskaya ASSR, new varieties of grain crops constitute 70-80 percent of the plantings, in many rayons and on farms in the nonchernozem zone they do not exceed 10-20 percent.

The greatest shortcoming in seed production -- low sowing qualities of the seed. Each year, large grain crop areas on farms in Novgorodskaya and Pskovskaya Oblasts are sown using such seed. During the past 2 years, 1st or 2d class seed was employed in Novgorodskaya Oblast for 36 and 37 percent of the sowings respectively and in Pskovskaya Oblast -- 30 and 27 percent. A large quantity of low quality seed is being sown on farms in Kirovskaya, Yaroslavskaya, Permskaya, Irkutskaya Oblasts and in the Udmurtskaya ASSR. This represents a serious reproach addressed against the agronomic service for the mentioned regions.

For the most part, this results from the fact that the plans for building and modernizing seed cleaning complexes and stations are not being carried out in a satisfactory manner. In particular, the construction of seed production installations on farms in Chitinskaya, Vladimirskaya, Ivanovskaya, Tomskaya and Tambovskaya Oblasts and in Khabarovskiy Kray and the Tatarskaya ASSR is falling behind.

The new five-year plan calls for sufficient capital investments to be made available for the logistical base for seed production, as a means for solving this problem. An important current task of the agricultural organs, kolkhozes and sovkhozes, especially in the nonchernozem zone, is that of ensuring that all of the farms are supplied with high quality seed for each crop. The agronomic service is focusing a

maximum amount of attention on the cleaning of the seed and improving it to sowing condition and, where possible, organizing the exchange of non-graded seed for graded seed.

Many farms are losing portions of their crops as a result of failure to observe the optimum periods for carrying out the work and also because of poor quality work. Thus, by 1 June of last year, the plan for plowing fallow land had been fulfilled only by the farms in Saratovskaya, Kuybyshevskaya, Rostovskaya and some other oblasts, while only two thirds of the fallow land had been plowed up by this date in Belgorodskaya, Kurskaya and Kemerovskaya Oblasts, in Altayskiy Kray and in the Bashkirskaya ASSR.

The agronomic service for a number of rayons throughout the republic warrants severe criticism for its weak organization of the autumn plowing work. Everyone is aware that this work must be completed by 20 October. However, by this date last year, the plan for autumn plowing had been fulfilled on kolkhozes and sovkhozes in the northwestern region by only 51 percent, in the central region -- by 59 and in Volgo-Vyatskiy Rayon -- by only 68 percent. In the Urals and in Kurganskaya and Orenburgskaya Oblasts, the autumn plowing work was carried out for all of the spring crops, the farms in Permskaya Oblast -- for 53 percent and in Sverdlovskaya Oblast -- for 77 percent. Many farms in the north Caucasus were late in completing their autumn plowing.

A very difficult and vital task is that of reducing losses in crops already grown. In solving this task, the republic's kolkhozes and sovkhozes are carrying out the modernization and new construction of grain storehouses, thrashing floors and grain drying and cleaning stations.

But the principal losses of many farms result from a dragging out of the harvesting periods and poor organization and low productivity of the combine fleet. Great opportunities and reserves are available here. Although in the south the average daily output per combine in 1980 reached 12-14 and even 16 hectares, on many kolkhozes and sovkhozes in Siberia it did not exceed 6-8 hectares and in the nonchernozem zone it fell to 2-3 hectares per day. This amounts to a considerable deficit in the work being carried out by the agronomic and engineering services in the mentioned regions.

We were not successful in all areas in acquainting the remaining regions with the exceptionally fruitful experience accumulated in the organization of harvest operations on farms in the southern and some eastern regions of the republic, particularly the Kuban' and Don River regions, Stavropol'skiy Kray and Volgogradskaya, Saratovskaya and Orenburgskaya Oblasts, where the Ipatovo method of flow-line organization of operations was developed extensively and where all of the forces and resources of the kolkhozes, sovkhozes and transport and procurement organizations of Goskomsel'khoztekhnika were mobilized in behalf of the harvest operations. During the harvest operations, extensive use was made in these regions of hourly and daily schedules, a double-shift and watch system for organizing labor, controlled threshings and wages based upon the quality of the work performed. As a result, last year many farms succeeded in harvesting their grain crops in just 7-9 working days.

In 1981, we will utilize leading experience in organizing the harvest operations in all areas. A reduction in the harvesting period of just 12-15 days will furnish the republic with a minimum of 3-3.5 million additional tons of grain. An active campaign should be launched in this regard.

Still another conclusion has been drawn from the harvest results of the last year of the five-year plan. The planning organs and industry must increase sharply the production of combines which operate on the basis of half-track and full caterpillar track drives, since wheeled combines cannot perform in a normal manner under excessively damp conditions in the nonchernozem zone and any type of alteration of such combines is ineffective. Industry is presently producing only 2,400 half-track combines and we are sending almost all of these to rice growing farms. The most urgent requirements of the Russian nonchernozem zone persistently demand that the production of these combines be increased to at least 4,000 annually and the production of full caterpillar track combines -- to 5,000.

In addition to raising cropping power and reducing grain losses throughout the republic, other reserves are available for increasing its production, reserves which should not be ignored. Here we have in mind the need for expanding the grain crop plantings, mainly in regions marked by adequate moisture, and also for improving the structure of such plantings. During the Eleventh Five-Year Plan, work will continue on expanding the plantings of the more productive crops: corn, rice, barley, pulse crops and others and on the introduction of new and highly productive varieties.

The agricultural organs must take advantage of still another reserve -- combating losses and using considerable grain crop areas for forage purposes.

There is still another important aspect of the grain economy -- its stability. The degree to which agriculture and its entire economy are disrupted by great drops in the grain yields is well known. This derives from the fact that the principal and largest regions of commodity grain production are located in the arid steppe zones. However, the leading kolkhozes and sovkhozes in these zones have accumulated a great amount of experience in ensuring stability for the grain economy. In particular, they are devoting special attention to mastering the correct crop rotation plans with clean fallow, the areas of which conform to the recommendations handed down by the scientific institutes. Moreover, they are working the fallow land in a timely manner, applying high dosages of organic fertilizers simultaneously with plowing them.

The operational experience of kolkhozes and sovkhozes which operate under the arid conditions which prevail in Omskaya Oblast is rather instructive in this regard. A system for managing farming is being introduced into operations here that has been developed by science and tested by practical experience over a period of many years. On a large number of farms the correct crop rotation plans have been mastered, the areas of fallow land have been increased to the optimum dimensions, soil protection measures are being carried out on an extensive scale, the logistical base for seed production is being strengthened and new and more productive varieties are being introduced into operations. Taken together, all of these factors have exerted a positive effect on the development of the grain economy and on its stability and this is borne out by data on the average annual production of grain during the past four five-year plans.

	Gross Yield (thousands of tons)	Cropping Power (quintals per hectare)
1961-1965	1821	6.6
1966-1970	2590	10.2
1971-1975	3003	12.9
1976-1980	3546	14.9

The grain being obtained in the nonchernozem zone warrants special mention inasmuch as great reserves are available in this zone for increasing its production. In recent years, many kolkhozes and sovkhozes in the nonchernozem zone have increased noticeably their grain harvests and yields. Today not only individual farms but in fact entire rayons are obtaining 25-30 or more quintals per hectare. However, on the average the level of development for the zone's grain economy is still not in keeping with the modern requirements and available potential. The state has supplied the kolkhozes and sovkhozes in the nonchernozem zone with large quantities of fertilizers and equipment and land reclamation work has been expanded considerably here. Thus there is every reason for believing that, by 1985, the region's gross yields of grain will increase by a minimum of 6-7 million tons compared to the Tenth Five-Year Plan.

The zone's farms are the principal suppliers of rye. Nevertheless, during the Tenth Five-Year Plan many of them were unable to fulfill their plans for selling rye to the state. Moreover, some of them even decreased their procurements of this valuable crop. The situation can be improved for the most part by raising the cropping power for rye, introducing new varieties such as Chulpan, Voskhod 1, Voskhod 2, Saratovskaya 4, Khar'kovskaya 60 and by observing the cultivation technology and the sowing periods.

Within an unprecedented brief period of time, a basically new branch has been created in the republic -- rice growing. Engineering systems have been built and placed in operation on an area of approximately 400,000 hectares. Rice production reached 1.5 million tons in 1980, compared to only 257,000 tons in 1965. The rice growers in the Kuban' region displayed wonderful patriotic initiative. Under the direction of the party organizations, they launched an active campaign to produce 1 million tons of Krasnodar rice. And their words were matched by action. One million tons of Kuban' grain were actually produced.

Although good results were realized in developing the production of rice, the same cannot be said regarding the production of such groat crops as buckwheat and millet. The agricultural organs, kolkhozes and sovkhozes must make more extensive use of the positive experience accumulated in the Bashkirskaya and Tatarskaya ASSR's, in Altayskiy Kray and in some other regions, in order to increase considerably the production of these valuable crops.

Greater use must be made of the opportunities available to the republic's farms for increasing the production of grain corn by expanding the growing areas and expecially by raising its cropping power, which in recent years has ranged from 26 to 28 quintals per hectare. This is roughly one and a half to two times less than the rate that can and should be obtained. By 1985, the plans call for it to be

increased to a minimum of 37-40 quintals per hectare and the gross yield for the RSFSR -- to 3.7-4 million tons.

During the current five-year plan, all of the corn areas will be converted over to the industrial technology. The initial experience in its use, on 395,000 hectares, produced positive results.

Further technical re-equipping of the branch for the purpose of completing its all-round mechanization during the new five-year plan will play an important role in the development of the grain economy. This will be promoted, as pointed out in a speech delivered by Comrade L.I. Brezhnev before the October (1980) Plenum of the CC CPSU, by the accelerated production of modernized Niva, Kolos and Sibiryak combines. For mechanizing the harvesting of the non-grain portion of a crop, importance is also attached to expanding considerably the production of straw mincers, including for the Sibiryak combines.

However, the most important concern is that of improving considerably the use of existing equipment at the kolkhozes and sovkhozes. During the current five-year plan, 4,500 repair workshops and 3,600 technical servicing stations are to be built or modernized on the farms. The use of the Ipatovo method will be expanded in all areas. The plans also call for further development of interenterprise cooperation in the operation and technical servicing of the machine-tractor fleet. The complex of measures aimed at improving the utilization of equipment and land resources includes enlarging the crop rotation plan fields in those areas where it is possible to do so and where the appropriate conditions have been prepared.

Special concern should be displayed for the machine operators. One of the most important tasks is that of ensuring that they improve their skills and encouraging them to remain on at the kolkhozes and sovkhozes. Towards this end, the farms are systematically expanding their housing, cultural-domestic and highway construction work and displaying greater concern for the living and working conditions of all of the farmers. The plans call for the annual construction, on the average, of a minimum of 10-15 apartments per farm. The reality of such plans is borne out by the experience accumulated in Moscow, Leningradskaya, Omskaya, Kirovskaya and Rostovskaya Oblasts, in Altayskiy Kray and in some other regions.

Recently, a considerable expansion has taken place throughout the republic in work aimed at improving the quality of the grain. The farmers in Krasnodarskiy and Stavropol'skiy Krays and in Orenburgskaya, Omskaya and a number of other oblasts have accumulated a considerable amount of experience in this regard. In 1980, 2.8 million tons of durum and strong wheat were procured (in 1965 -- 0.7 million tons). However, this was a small amount. The farms in Volgogradskaya, Saratovskaya, Kuybyshevskaya and Chelyabinskaya Oblasts, Altayskiy Kray, Bashkirskaya ASSR and in many other regions are capable of selling a considerably greater quantity of high quality grain to the state.

Great reserves are available for improving the use of forage grain. During the past few years, 68-70 million tons of concentrated feed have been consumed in the RSFSR in order to satisfy the requirements of animal husbandry. This figure is expected to increase in the future. However, efficient use is not being made of these vast resources. Only 28 million tons of concentrates are being fed in the form of mixed

feed. The remaining grain is being consumed in whole form or in the form of feed mixtures. According to computations by specialists, this is causing the state, kolkhozes and sovkhozes to lose more than 1 million tons of grain annually.

The task of improving the utilization of forage grain will be solved by two principal methods: first of all, by increasing the production and improving the quality of coarse and succulent feed, mainly hay and root crops and, secondly, by increasing considerably the protein content in the feed. According to data obtained from studies, at the present time one feed unit on the republic's farms contains an average of only 89-90 grams of protein, whereas the norms call for 105-110 grams. For the republic on the whole, the protein deficit (per year) amounts to 2.3-2.5 million tons and this leads to a great overexpenditure of concentrates. In this regard, one of the most urgent tasks confronting the kolkhozes and sovkhozes is that of expanding the plantings and raising the cropping power for peas, leguminous perennial grasses, soybeans, rape, sweetclover and sorghum, making more extensive use of urea when laying in silage, increasing the production of meat and bone meal and implementing radical improvements in the work of both the state and the interenterprise mixed feed industry.

For the future, the plans for the republic call for the plantings of peas and other pulse crops to be increased to 9 million hectares, compared to only 3.2 million hectares in 1980. The gross yield for these crops must be increased to 15 million tons, compared to an annual average of 4 million tons during the Tenth Five-Year Plan. Many oblasts, especially Ul'yanovskaya, Penzenskaya, Voronezhskaya and Kurganskaya and also the Bashkirskaya ASSR, possess the potential for increasing their pulse crop areas considerably during this current year.

Permit me to add a few words concerning the economics of the grain economy. This branch provides a strong foundation for the economies of kolkhozes and sovkhozes, especially in regions of commodity grain production. Of the entire amount of profit obtained from farming throughout the RSFSR on the whole, 80-85 percent derives from grain. The average profitability of the branch at kolkhozes during the 1976-1979 period was 69 percent and at sovkhozes -- 61 percent. But by no means have all of the opportunities for further improving the economic efficiency of the grain economy been exhausted.

At the present time, the average production cost for 1 quintal of grain in the republic is 7.6-7.7 rubles and the trend in recent years has been for this figure to increase. More than 70 percent of the production cost is for material expenditures. A most important condition for raising the profitability of grain production is that of achieving strict economies in material expenditures and a steady reduction in live labor expenditures.

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The campaign in behalf of the harvest for the first year of the new five-year plan has already commenced. With each passing day, the complex of winter agrotechnical measures is being carried out on a more extensive scale. A top dressing will be applied to all of the winter crop areas and 290 million tons of organic fertilizer will be applied to the fields, 20 million tons more than last year. In addition,

liming work will be carried out on 1.47 million hectares of acid soil, with optimum dosages of lime being applied.

Snow retention work is being carried out on a broad scale, especially in the steppe regions. However, the main concern is that of making preparations for the spring sowing of high quality seed. This is a difficult task and the agronomical service must do everything possible to ensure that it is carried out successfully.

A great volume of work remains to be carried out in connection with the repair of the machine-tractor fleet and the grain harvesting combines. The RSFSR Council of Ministers has assigned a basically new task -- completing repair operations on the grain harvesting combines prior to the commencement of the spring sowing operations. Last year, some of the oblasts, krays and autonomous republics succeeded, for the most part, in doing this.

Patriotic initiative was displayed by the 100,000 machine operators in Altayskiy Kray who, by way of making proper preparations for the 26th CPSU Congress, resolved to prepare 20,000 combines or 85 percent of their overall number for operations prior to the opening day of the congress and to complete repair operations on all of the combines and feed harvesting machines prior to 15 April 1981. This initiative was warmly supported and disseminated in all oblasts, krays and autonomous republics.

The winter period was also used for organizing the training and retraining of skilled personnel through courses, at professional-technical institutes, within the system of machine operator general education and other forms of instruction. In short, all measures were undertaken aimed at solving the main task of the grain growers -- increasing the production of grain in every possible way.

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TILLING AND CROPPING TECHNOLOGY

IMPROVED FERTILIZATION SERVICE IN RSFSR CALLED FOR

Moscow SOVETSKAYA ROSSIYA in Russian 22 Feb 81 p 2

[Article by V. Bel'chenko, chairman of the Rossel'khozkhimiya Association and 1st deputy minister of Agriculture for the RSFSR: "Fertility Service"]

[Text] When a farmer reflects upon the fate of his crops and upon what is required in order to obtain greater output, his thoughts always return to the fertility of the land. And certainly it is by no means an accident that among the industrial branches which work in behalf of agriculture, the production of fertilizers and other means employed in the chemicalization of agriculture is growing most rapidly. During the past 15 years alone, the amount of mineral fertilizers applied on the average to 1 hectare of arable land in the Russian Federation increased by a factor of more than five. The new horizons for chemistry in this branch are discussed very convincingly in the CC CPSU plan "Basic Directions for the Economic and Social Development of the USSR During the 1981-1985 Period and During the Period Up To 1990." It calls for agriculture to be supplied with no less than 115 million tons of mineral fertilizers in conventional units in 1985.

Chemicalization is not restricted to just fertilizers and plant protective agents. Chemicalization also consists of an all-round system for the chemical analysis of soils, the development of soil cartograms and forecasts for the development of diseases, weeds and pests. It includes a tremendous arsenal of equipment for the storage, transporting, preparation and application of chemical agents.

On the average, each ruble of expenditure for the use of chemical processes in the Russian Federation furnishes the kolkhozes and sovkhozes with 2.5 rubles of profit and on irrigated and drained lands -- 3.5 rubles. Are these amounts large or small? The answer is partly contained in the following indicators: one half of the entire increase in yields in the Russian Federation and in the nonchernozem zone, three fourths, are obtained based upon the use of chemical means.

However, the present status of affairs with regard to the cropping power for the principal crops and soil fertility testifies more to the fact that chemicalization is still not producing the required return. If we were to employ in an efficient manner the chemical resources which we presently have at our disposal, then this alone would make it possible to raise the productive strength of a hectare by 15-20 percent. It was precisely for this reason that the plan for principal trends devoted a great amount of attention to raising the role played by the agrochemical

service in agriculture and its responsibility for the efficient use of mineral fertilizers, liming materials and chemical agents for protecting plants.

Exactly what is the All-Russian Production-Scientific Association Rossel'khozkhimiya, created on the basis of a decision handed down by the party and government? Sel'khozkhimiya associations are presently to be found in all of the rayons, oblasts, krays and autonomous republics. Agrochemical work is being carried out at the kolkhozes and sovkhozes by 1,850 mechanized detachments. The planning-research work and documentation for them is being furnished by 187 agrochemical laboratories and stations for the use of chemical processes and for the protection of plants. Rossel'khozkhimiya also has at its disposal a wide-flung network of bases for supplying and storing chemicalization resources, transport and repair subunits, construction organizations and enterprises for procuring peat, lime and so forth. The association's structure includes two scientific-research institutes -- for the chemicalization of agriculture and for the protection of plants and also a Central Peat Bog Experimental Station.

All of the chemicalization subunits which earlier operated separately under Goskomsel'khoztekhnika and RSFSR Minsel'khoz [Ministry of Agriculture] are now being brought together into a single specialized service.

The prospects for chemicalization are greatly dependent upon the efficient organization of a search for and the introduction of new opportunities, new resources and technological methods for providing agrochemical services for the kolkhozes and sovkhozes. For example, let us take the use of organic fertilizers. This peasant type of work that has been carried on for centuries is acquiring new importance under present day conditions. Large quantities of organic materials are accumulating on the large animal husbandry farms and complexes built during the past few years, the utilization of which requires a special work technology and powerful equipment. Unfortunately, the plants of Minsel'khozmash [Ministry of Agricultural Machinery] and Minzhivmash, which produce the machines for transporting and applying liquid organic materials, are solving this particular task in a very slow manner. This is resulting in considerable fertilizer losses, with roughly one fifth never reaching the fields. This is why we consider the plan for principal trends to be basically correct when it calls for more complete and effective utilization of the organic fertilizers.

A very large source for obtaining additional fertilizer resources is that of peat, the supplies of which are especially great in the nonchernozem zone of the RSFSR and in the oblasts of Siberia and the Far East. But peat is good only when combined with organic composts. In its pure form it can lower the fertility of soils. Thus Sel'khozkhimiya is presently developing a single plan for the construction of shops and units for the production of peat composts at large farms and complexes. The implementation of this plan will make it possible to increase the production of valuable organic fertilizers by more than 100 million tons.

In order to solve this task successfully, those organizations which plan the animal husbandry farms and complexes must include in their structure the construction of shops and units for composting, in all areas where supplies of peat are available. The design bureaus and enterprises of Minzhivmash must develop and master the production of equipment for such shops and units. For its part, Sel'khozkhimiya is

organizing mechanized detachments for transporting the peat and composts, for loading and unloading them and for applying them to the soil in accordance with contracts reached with the kolkhozes and sovkhozes. Fine experience in carrying out such work has already been accumulated in Pskovskaya, Leningradskaya, Kalininskaya and Vologodskaya Oblasts.

The plan for the principal trends for the economic and social development of the USSR is serving to stimulate the newly created subunits of Sel'khozkhimiya into more rapidly becoming a single service for providing maximum concentration on improving cropping power. Former concepts and opinions are still in evidence in the work being carried out by a number of associations. Those who came to Sel'khozkhimiya from Goskomsel'khoztekhnika would like to remain only in the position of contractors engaged in carrying out mechanized work. They are not overly concerned with the final results. On the other hand, those services which transferred over to Sel'khozkhimiya from agricultural control organs are also attempting to retain their former system, which amounts to control over the contractor, taking into account and issuing recommendations and once again without any direct responsibility for the crop.

The efficient use of fertilizers is dependent upon the status of the production base for their storage. At the present time, the republic's requirements for mineral fertilizer storehouses are being met by only 51 percent. And there are almost no facilities available for the acceptance and storage of such modern means of chemicalization as anhydrous ammonia, liquid complex fertilizers and feed preservatives and the planning organs are calling for their construction in definitely insufficient volumes.

Our association developed a single system for the distribution of storehouses for the means of chemicalization. The local agricultural organs and contractual organizations must devote greater attention to their construction. Today the republic still does not have an all-round production base for chemicalization in any of its rayons. This is a critical factor at the present time, inasmuch as the rayon associations of Sel'khozkhimiya have entered their first winter of independent work. Only 1 year ago, many of them used garages, workshops and the domestic facilities of Goskomsel'khoztekhnika and today they no longer have these facilities at their disposal.

The party, soviet and agricultural organs in the Mariyskaya and Tatarskaya ASSR's, Krasnodarskiy Kray and Saratovskaya, Vologodskaya, Tambovskaya and other oblasts furnished the new chemicalization service with comprehensive support during the initial stages of its formation.

But this same approach is not being employed in all areas. Sel'khozkhimiya in the Buryatskaya and Komi ASSR's and in Irkutskaya, Permskaya and a number of other oblasts is in difficult straits.

In connection with the development of the chemicalization service, great importance is attached to determining its place within the system of agricultural organs. There are conflicting points of view with regard to solving this problem. Sel'khozkhimiya is required only by a kolkhoz or sovkhoz; it is a special agricultural organization which operates only out on the land, on the fields and for

the purpose of increasing the yields. It is precisely this factor which explains its desire to more rapidly acquire the rights of citizenship in the agricultural organs and receive their recognition and support. But, strangely enough, the new service is experiencing a certain amount of alienation and is being watched very carefully by its own oblast, kray and republic administrations and agricultural ministries.

New approaches are being developed for organizing agrochemical work as the result of the formation of a single chemicalization service. The best yield results are being obtained when the work is organized in a manner such that a field is turned over to Sel'khozkhimiya for repair purposes. In such instances and strictly on the basis of cartograms, organic and mineral fertilizers are applied and, if necessary, soil improvement work, liming, phosphorite applications and so forth are carried out. Subsequently, this field is turned over to a kolkhoz or sovkhoz with a certificate in which it is stipulated that a certain cropping power is guaranteed and programmed. Such methods are also being employed extensively in the Tatarskaya, Bashkirskaya and Severo-Osetinskaya ASSR's, Stavropol'skiy Kray and in Tambovskaya, Belgorodskaya and other oblasts. No dispersion of forces, their concentration on the complete agrochemical treatment of fields and realizing a direct return from chemicalization in the form of yields -- such is the principal trend to be followed.

In the work of introducing effective means of chemicalization and a progressive technology for employing them into agriculture, a special place belongs to the scientific-research institutes and to the chemicalization and plant protection stations. Unfortunately, many of them, and particularly the All-Russian Scientific-Research Institute of Agricultural Chemicalization, have still not become centers of creative and industrious activity. The associations must improve their management of the scientific-technological and research elements, transform them into an efficient and active part of a single service and raise the role they play in raising cropping power.

In the interest of rapidly improving the chemicalization of agriculture, many complexities and obstacles along the path leading to its development must be eliminated. During the formation of Sel'khozkhimiya, solutions were not found for many important problems upon which its vitality is dependent. In particular, the newly created rayon and oblast associations are experiencing economic difficulties caused by a shortage of limits on the maximum appropriations, working capital and so forth.

Sel'khozkhimiya emerged from Sel'khoztekhnika in a weakened state and thus the republic's Gosplan, Goskomsel'khoztekhnika and the Ministry of Finances must undertake complex and efficient measures aimed at strengthening this service.

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TILLING AND CROPPING TECHNOLOGY

SUPPORT FOR INCREASING ACREAGE SOWN TO RYE URGED

Moscow SEL'SKAYA ZHIZN' in Russian 10 Feb 81 p 2

[Article by Yu. Kondrat'yev, chairman of Zarya Kolkhoz, Gavrilovo-Posadskiy Rayon, Ivanovskaya Oblast: "In Order To Grow Rye"]

[Text] Medical specialists have stated that approximately one half of the bread consumed should be rye bread. It contains many vitamins, proteins, sugars and cellulose required by the human organism. It also contains the very important amino acid -- lysine.

But the question is not one of the ingredients used for baking brown bread for our table -- recently, a sharp reduction has taken place in the sowings of rye. True, our kolkhoz has not traveled this path. But during the past decade, our neighbor, the Gavrilovo-Posadskiy Sovkhoz, decreased the area used for this valuable food crop by a factor of more than three. During the past 4 years alone, these areas were decreased by an average of 20,000 hectares throughout the oblast. One other circumstance should be added to this fact -- against an overall increase in the productivity of the grain fields during the Tenth Five-Year Plan, the average annual yield of rye decreased by 13 percent.

What went wrong with rye?

The causes must lie in the rapid development of our rural areas, in the expansion that has taken place in the public herd and in the production of feed for it. Whereas earlier rye was the most productive crop on the impoverished lands of the northern and central zones of Russia, today it is being displaced by wheat as a result of improved preceding agricultural practices. It is more responsive to fertilizers, it does not require as much labor during harvest operations and it furnishes greater yields of grain. There is still another factor: the scientist-plant breeders, for one reason or another, concentrated all of their attention on the breeding of new varieties of wheat and in the process they forgot about the "old timer" of the northern fields. The farms have begun sowing greater quantities of barley and oats.

The time is at hand for such practices to recede into the past. In speaking before the July (1978) Plenum of the CC CPSU, Comrade L.I. Brezhnev emphasized in particular that a greater amount of attention must be given to the cultivation of rye for grain purposes and that a number of farms have clearly underestimated the

value of this crop. This same thought is expressed in the plan for principal trends. But it is my belief that the entry should be more specific: "Measures should be undertaken to increase considerably the production and procurement of rye. Towards this end, the regions in which it is to be grown should be defined, rich soil should be ensured and greater emphasis should be placed upon material incentives for the raising of this valuable crop and upon the demand for unconditional fulfillment of the production plans for rye by each farm."

Certainly, the first step should be that of selecting the varieties required for each zone, particularly in view of the fact that they only appeared during the past few years. Here we have in mind such varieties as Khar'kovskaya-55, Khar'kovskaya-60, Chulpana and Voskhod-1. We have already tested the first two at the farm -- both passed the examination for cropping power. Khar'kovskaya-55 was especially gratifying. Even during years marked by unfavorable weather conditions, we obtained an average of 30 quintals of grain from each hectar occupied by this variety. Khar'kovskaya-60 has also furnished high yields.

But it is my opinion that the Khar'kovskaya varieties have two major shortcomings: they are inclined to lodging and they possess a low winter hardiness. On the other hand, this cannot be said regarding Voskhod-1. We sowed it in our rayon for the very first time and we obtained an excellent yield -- more than 38 quintals per hectare. In addition to being better adapted to mechanized harvesting operations than other varieties, Voskhod-1 also bushes out very well during both the autumn and spring periods.

For the sake of fairness, it must be stipulated that our farm and the Svetoch Breeding Plant are rich with grain growing traditions. But what yields are being obtained for the different varieties for the oblast as a whole? Here are the average annual indicators for the current five-year plan: Vyatka -- 8 quintals per hectare, Khar'kovskaya-55 -- 10.7 and Voskhod-1 -- 15.7 quintals per hectare. In view of these figures, why is it that we have still not rid ourselves of Vyatka? Why is it that in such rayons as Kineshemskiy, Sokol'skiy and Il'inskiy, the principal rye areas are still being sown to this variety? First of all, Voskhod-1 has only been regionalized for 2 years and, secondly, we suffer unfortunately from a shortage of seed.

This is partially explained by the fact that the rye grain, even for a standard moisture content of 14 percent, is being stored poorly. Experience has shown that this phenomenon can be avoided by lowering the moisture content of the seed to 12 percent, but this cannot be accomplished on just any dryer. It is not recommended that the seed grain be dried at all-round grain-cleaning stations of the KZS-10 or KZS-20 types. However, almost no other dryers are available. Thus, there can be only one conclusion: in addition to modern grain cleaning complexes, all of the farms must also be equipped with forced ventilation drying units, as are a number of farms in Zavolzhskiy Rayon.

A greater role is played by a combine operator when he is required to harvest rye for seed purposes. He must adjust the units of his machine in a manner such that the rye grain, which has an elongated shape, sustains no mechanical damage. Quite often we fail to focus attention on this fact. Moreover, we often overlook still another factor -- we do not plant our rye following clean or occupied fallow. We

do not have to go very far to find examples. Our farm has practically no clean fallow whatsoever and the winter crops must be planted following late ripening crops. And this leads to a situation wherein, during the month of August and owing to insufficient time, equipment and personnel, the fields are not supplied with adequate quantities of organic and mineral fertilizers.

Late sowing operations, again on poorly fertilized areas, leads to complete or partial losses of the winter crops on an annual basis. In order to avoid this and obtain high and stable yields, adequate areas of fallow land must be made available. This will make it possible to apply 25-30 tons of organic fertilizer to each hectare of winter crops, carry out liming and phosphorite application work in a timely manner, organize a campaign against weeds and carry out the sowing work during the best agrotechnical periods. It also makes sense to raise the procurement prices for rye.

Similar conclusions have been drawn by the scientists at VASKhNIL [All-Union Academy of Agricultural Sciences imeni V.I. Lenin] who, acting upon a request by the Ivanovskaya Oblast Party Committee, participated in the development of a program for strengthening the economies of the oblast's kolkhozes and sovkhozes. By the end of this new five-year period, the farmers in this textile kray will have achieved a grain crop cropping power of no lower than 20.5 quintals, compared to an average of only 14.9 for the 1976-1979 period. The plans call for this increase to be achieved through improved use of the arable land and by expanding the winter grain plantings. And rye, as an age-old crop of the nonchernozem zone, must occupy its proper place in the structure of these grain crops.

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